

# GEORGE ENGELMANN BOTANICAL NOTEBOOKS

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Since many of the items lack a specific  
page number, the page number displayed  
online refers to the sequentially created  
number each item was given upon  
cataloging the materials.*

P. balsam

June 1<sup>st</sup> 1872

tree south of Green house, 1103 Missouri May 31 1872

SW



8/21 arranged



leaf on main axis



x10

leaf on stouter

lateral branch (offer more acute)

leaf on last branchlets

leaf on last branchlets

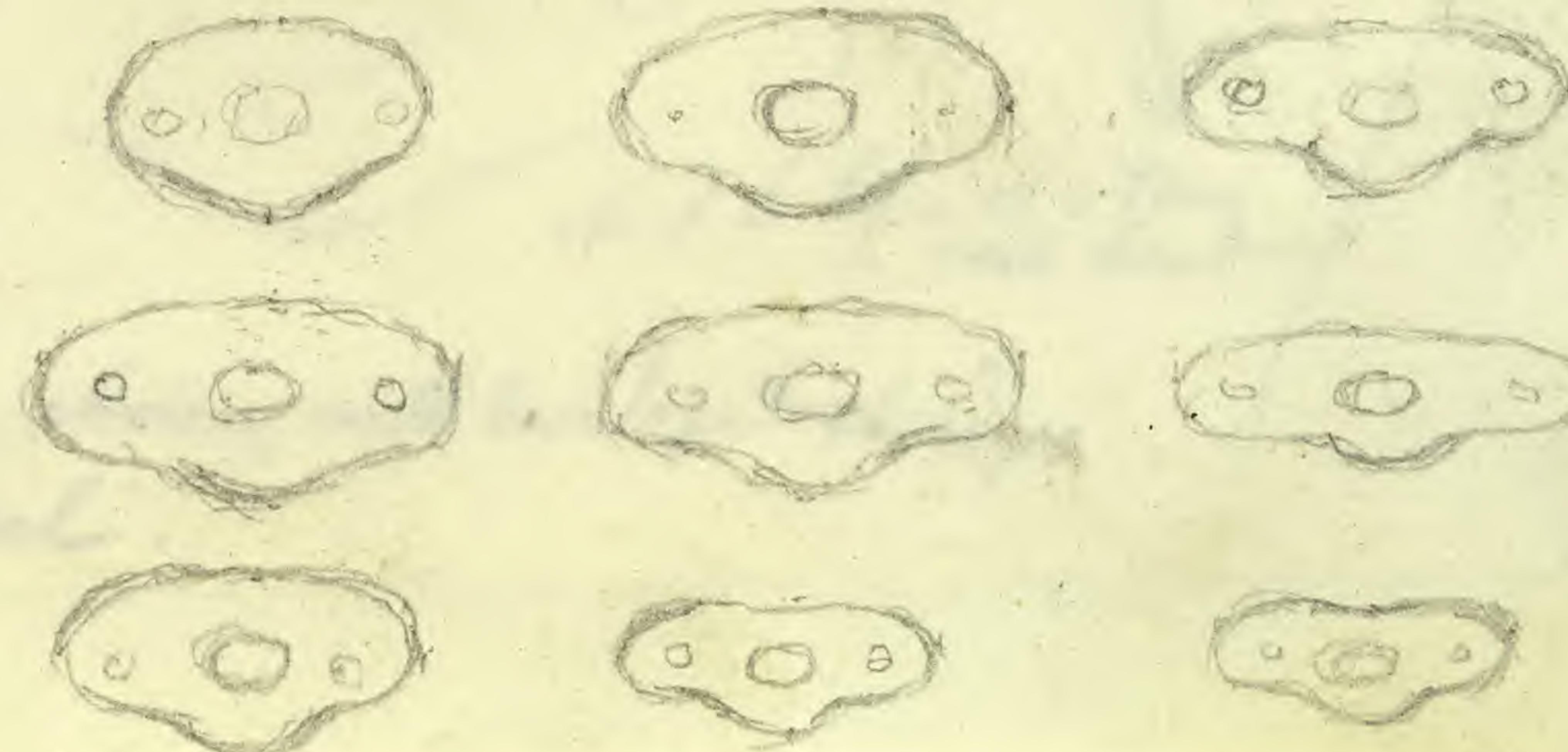
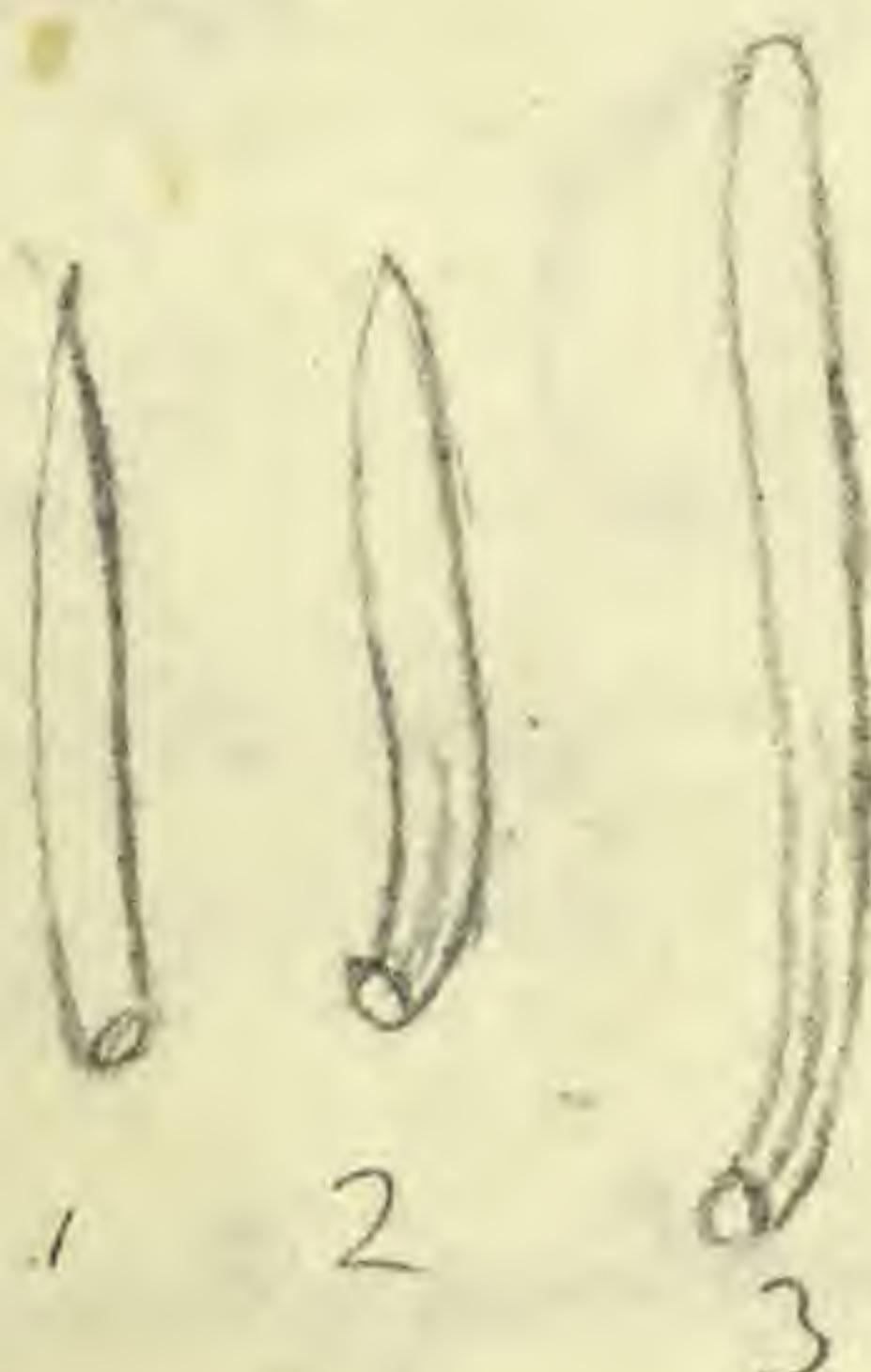
larger, obtuse

leaves only

last branchlets  
sterile

scct near tip

scct middle



stomata on  
both sides

above base



0 1 2 3 4 5 6 7 8 9 10

cm

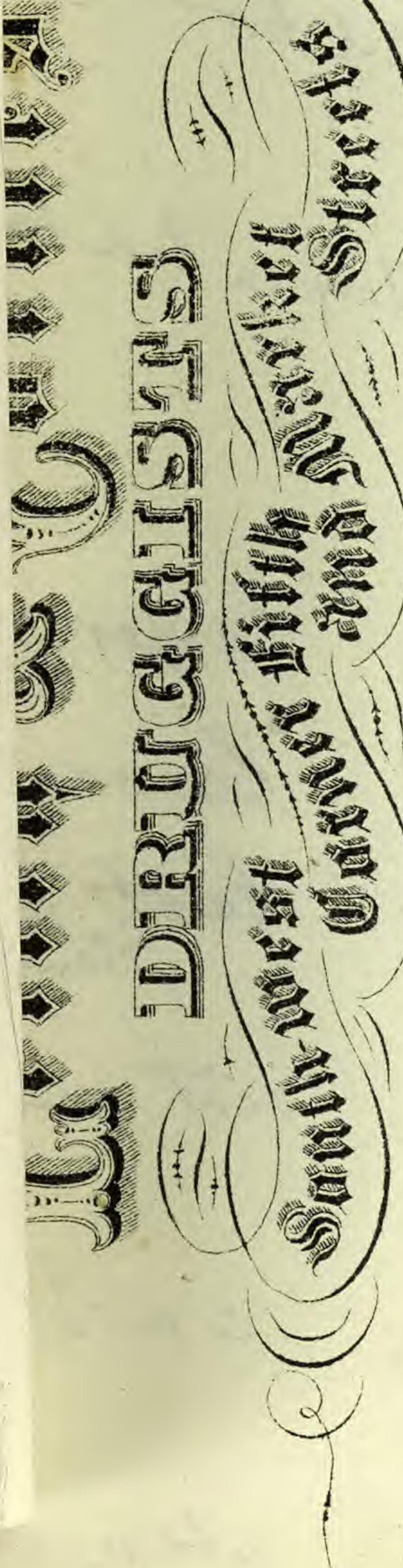
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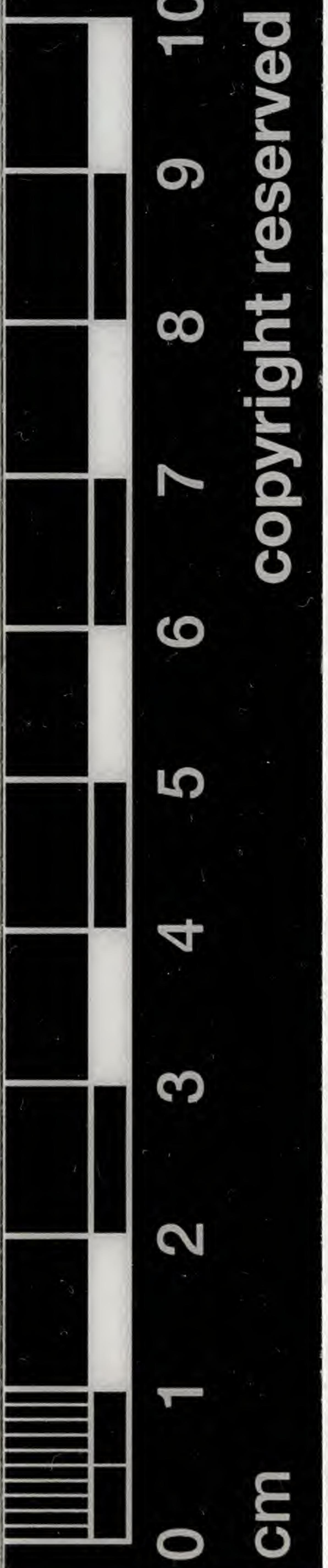
MISSOURI  
BOTANICAL  
GARDEN

12702

ML 1



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*Abria balsamea*

Oct 2<sup>nd</sup> 18

Host Bot Museum 1872  
central band of stout

H.B. Morris  
1865  
is the same

no hypoderm at all in  
flatter leaves, in thicker ones  
a few cells at Keel, - others also a few on edges

6-8 lines of stom.  
in each band

H.B. Cambridge  
2/6 1873  
is the same

only leaves less  
long pointed

no hypoderm above, well developed at edges  
some at Keel.

covered with stomata

about 6 lines of stom  
in each band



0 1 2 3 4 5 6 7 8 9 10

cm

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0 1 2 3 4 5 6 7 8 9 10  
cm

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*Abies Balsamea*

19 July 1872

*Abies Balsamea*

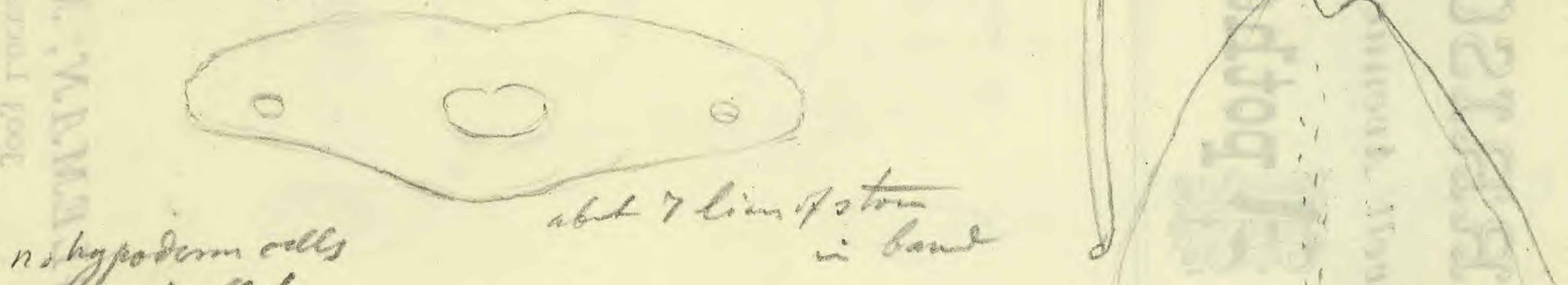
Oct 2 1875

MacLean, H. Gillman 1873

Lower branches

& H. Gillman 1/1872

line of few stomata in upper  
part of groove



no hypoderm cells  
at all!

Gillman 1872 has the ducts also toward the margin  
and near the lower side of leaf, but separated  
from the cortical layer by pericyclic, as in this



0 1 2 3 4 5 6 7 8 9 10

cm

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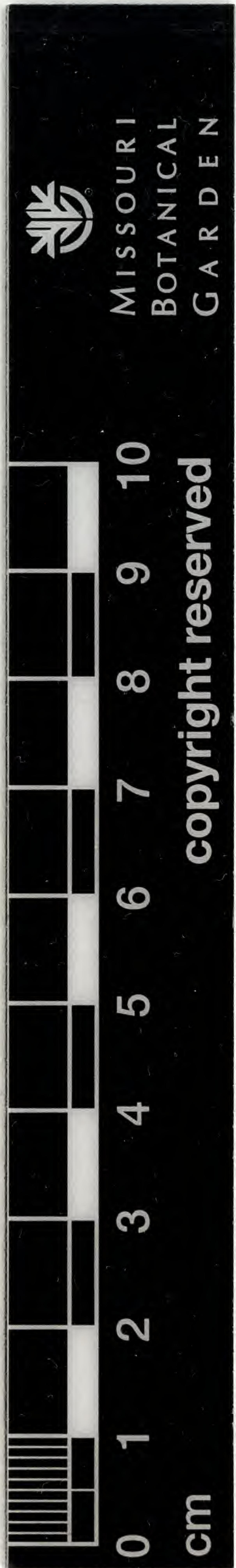


Fruggist & 

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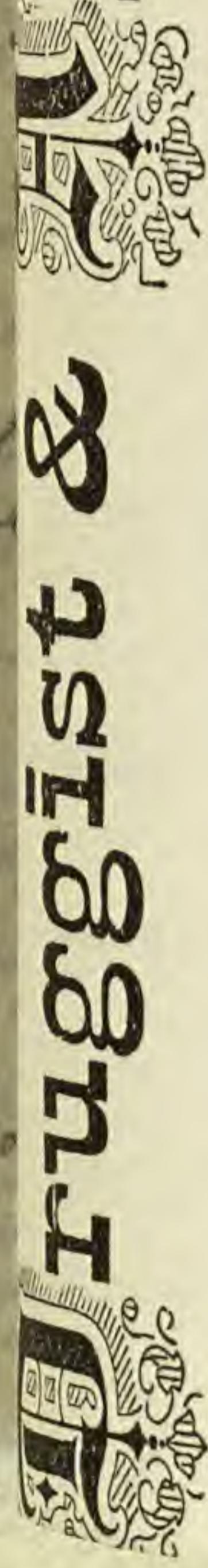
*Abies Balsamea*

19 July 1872

Michigan, H. Gillman lower branches -



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0 1 2 3 4 5 6 7 8 9 10

cm

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ALEX. LEITCH,  
APOTHECARY & PHARMACEUTIST.

Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

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0 1 2 3 4 5 6 7 8 9 10

cm

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*A. balsamea*

base of mount Washington

young tree?

Oct 1 1875

J. Gray Sept 1856

$\times 30$

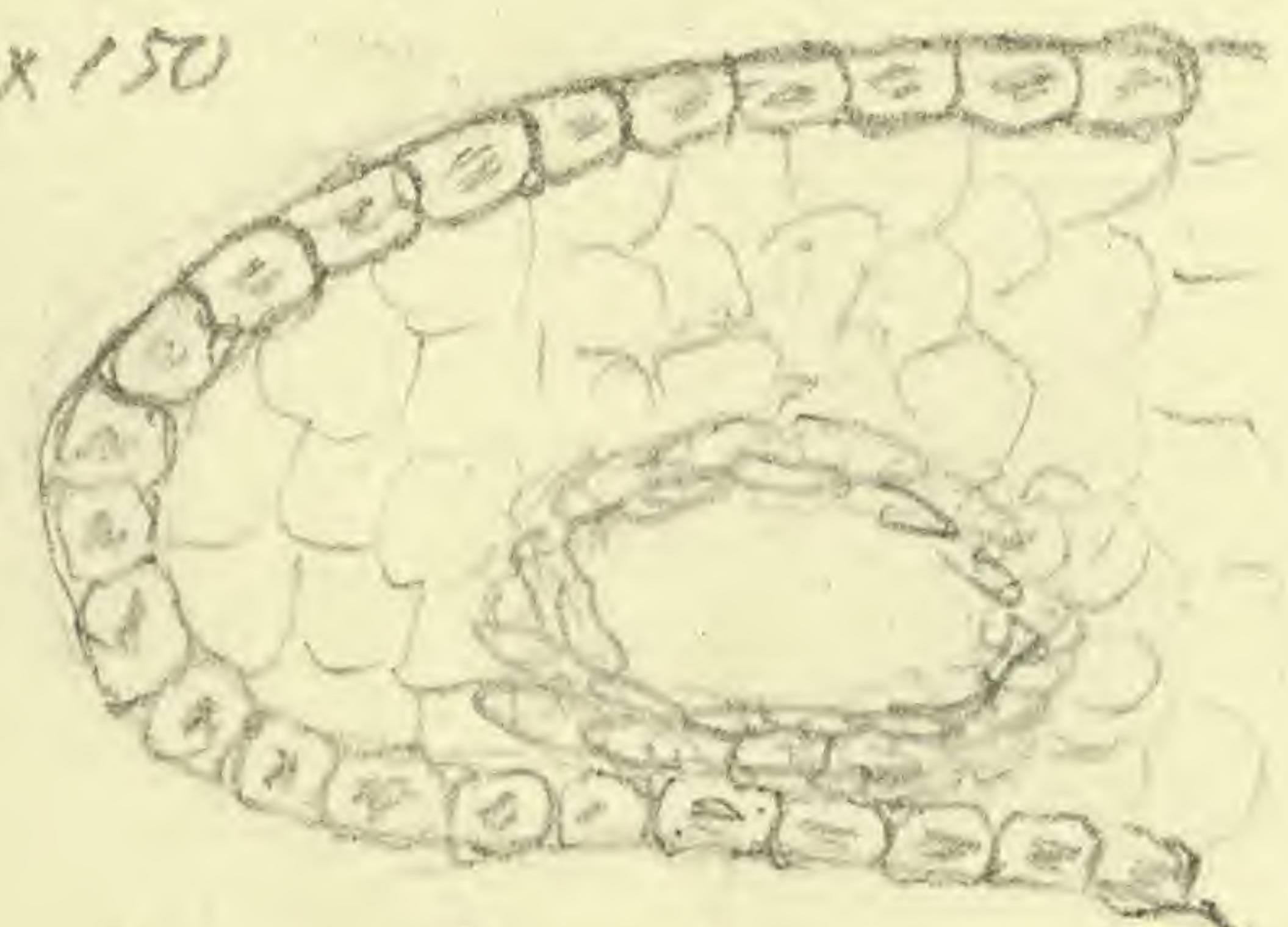
no stomata



4-6 lines  
of stomata in each band

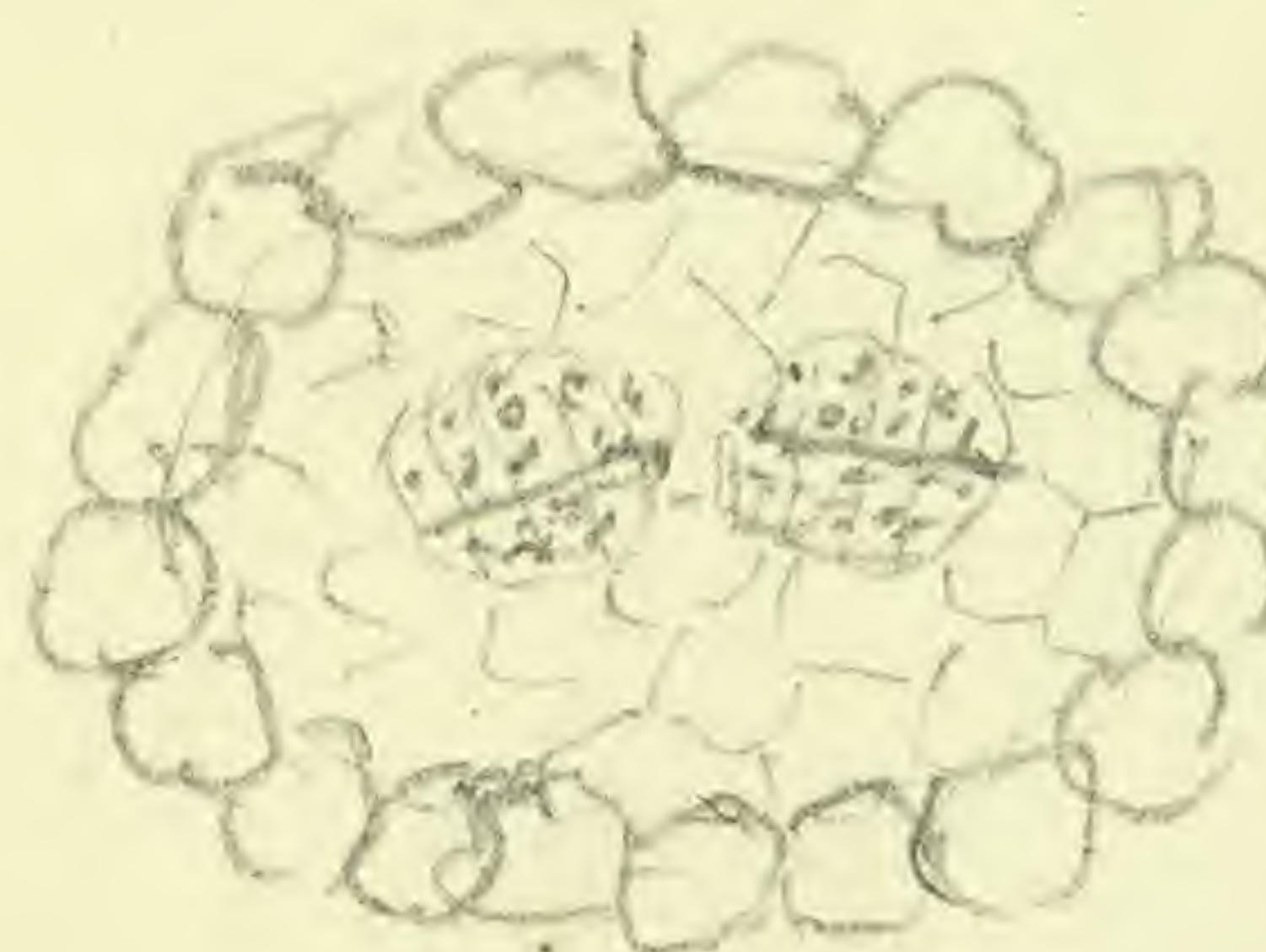
2 bands of stomata

$\times 150$



Jan 25 1876

$\times 150$



no hypoderm at all



0 1 2 3 4 5 6 7 8 9 10

cm

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0  
cm

1

3

2

4

5

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9

10

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A. Galloso

Oct 1 1975

Dwarfed, near top of Mount Washington

Y. Longfellow Sept 1836

$\times 30$

crowded with slovenly



large coffee cup  
of stout dark wood  
and 8 lines

not happen down below, a few rods off  
on Carrizo and on the low / - side.



0 1 2 3 4 5 6 7 8 9 10

cm

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0 1  
cm

2 3 4 5 6 7 8 9 10

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*Abies balsamea*

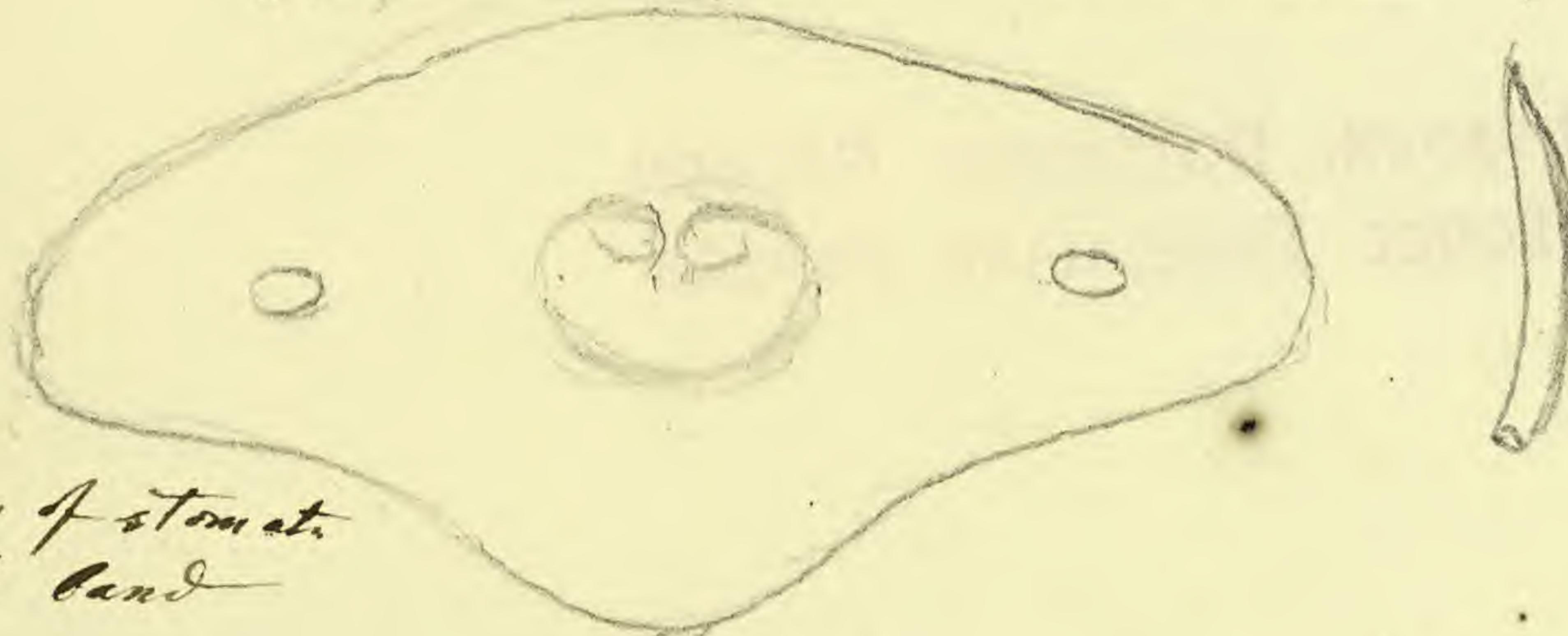
Oct 2<sup>nd</sup> 1875

Hoopes, West Chester, 1872

Fructifying branch

×30

surface covered with stomata



4-7 lines of stomata  
in each band

flat leaves have no hypoderm at all  
thick leaves, like the above, have none  
on upper surface, but on keel and  
edges it is strongly developed, all  
around the sides, to under the ducts.



0 1 2 3 4 5 6 7 8 9 10

cm

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0 1 2 3 4 5 6 7 8 9 10

cm

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*A. Balsamea*

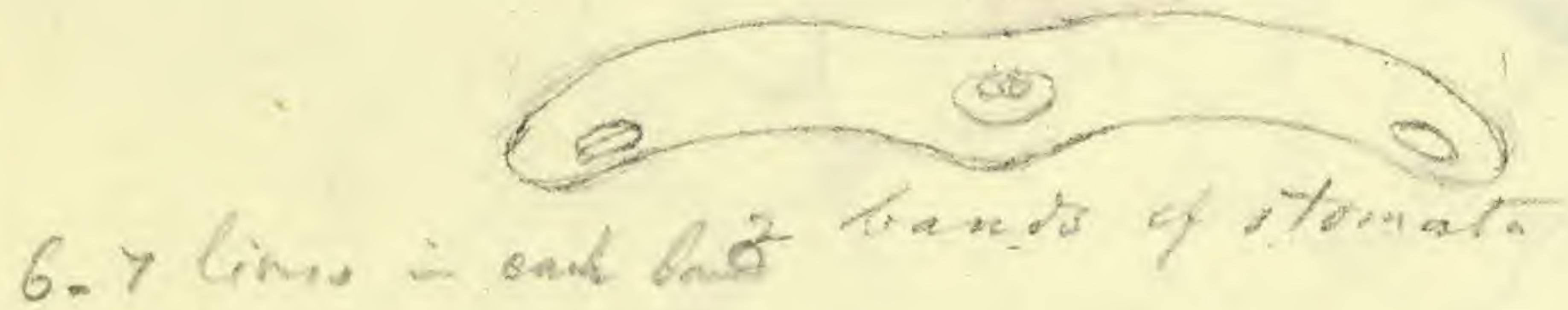
Oct 6 2 1875

Pop 51

Michigan, H. Gillman 1873

$\times 30$

few stomata at tip  
or none



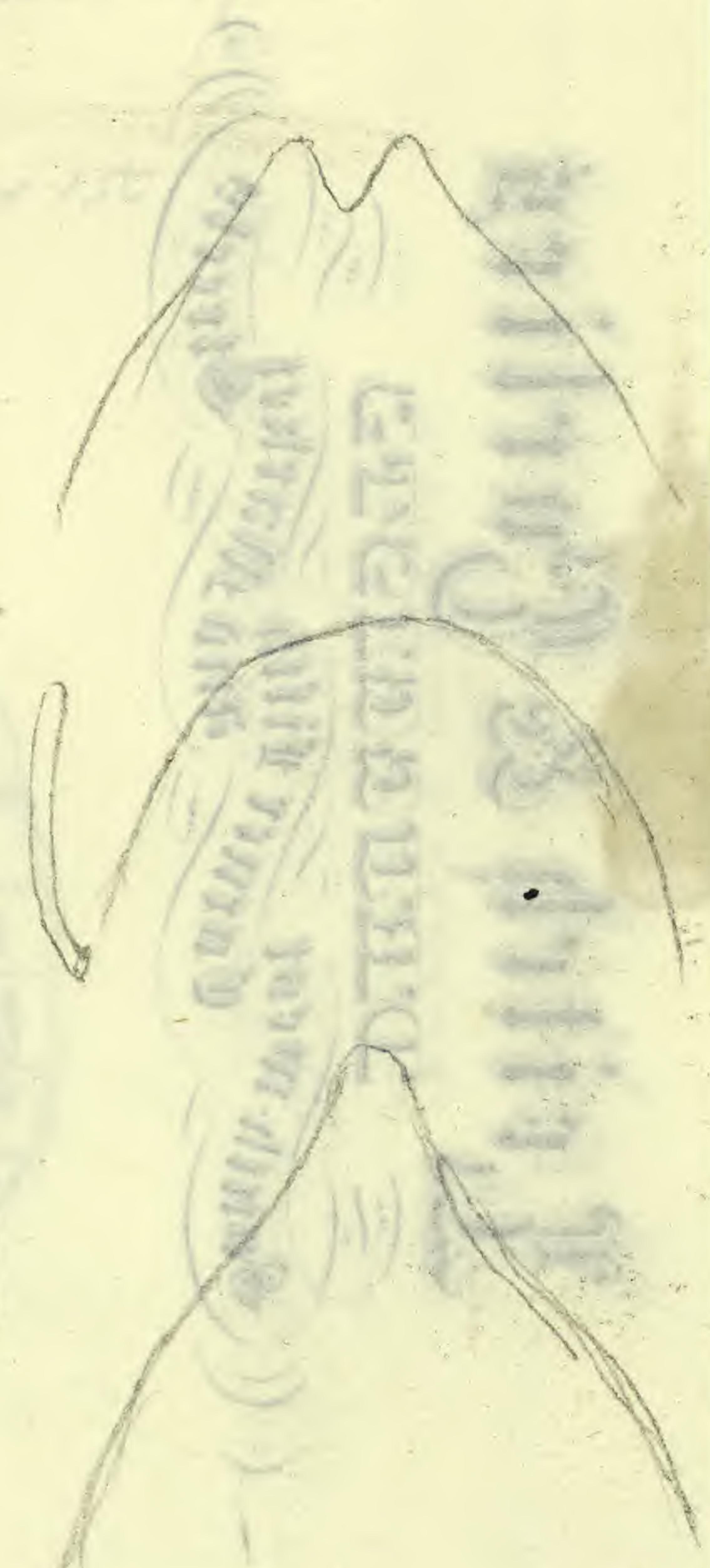
this year  
leaf  
young shoot

covered with stomata



Manfield Ut  
in Hb Gray  
is very much  
like these

covered with stomata



0 1 2 3 4 5 6 7 8 9 10

cm

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H. Gillman

12709

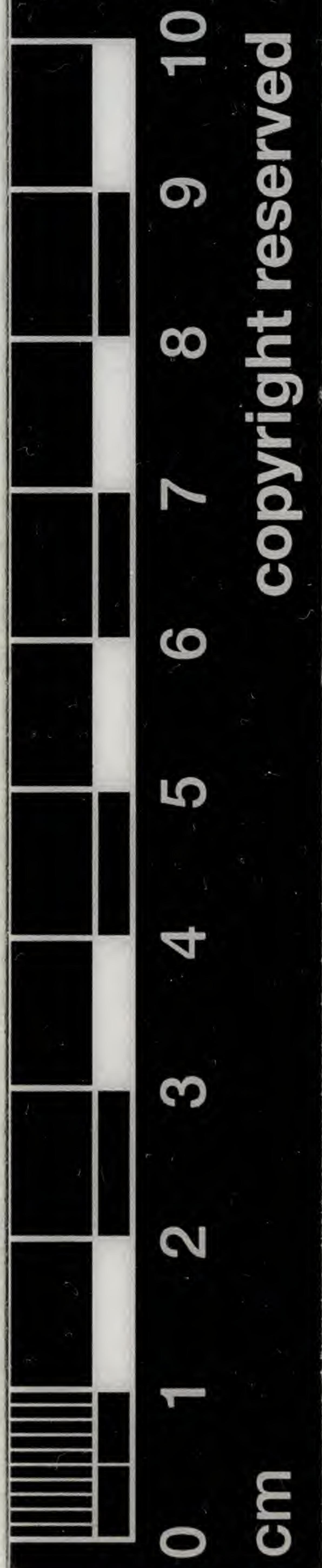
× 150

Digitized by Google  
Samuel Willard  
and Market Street

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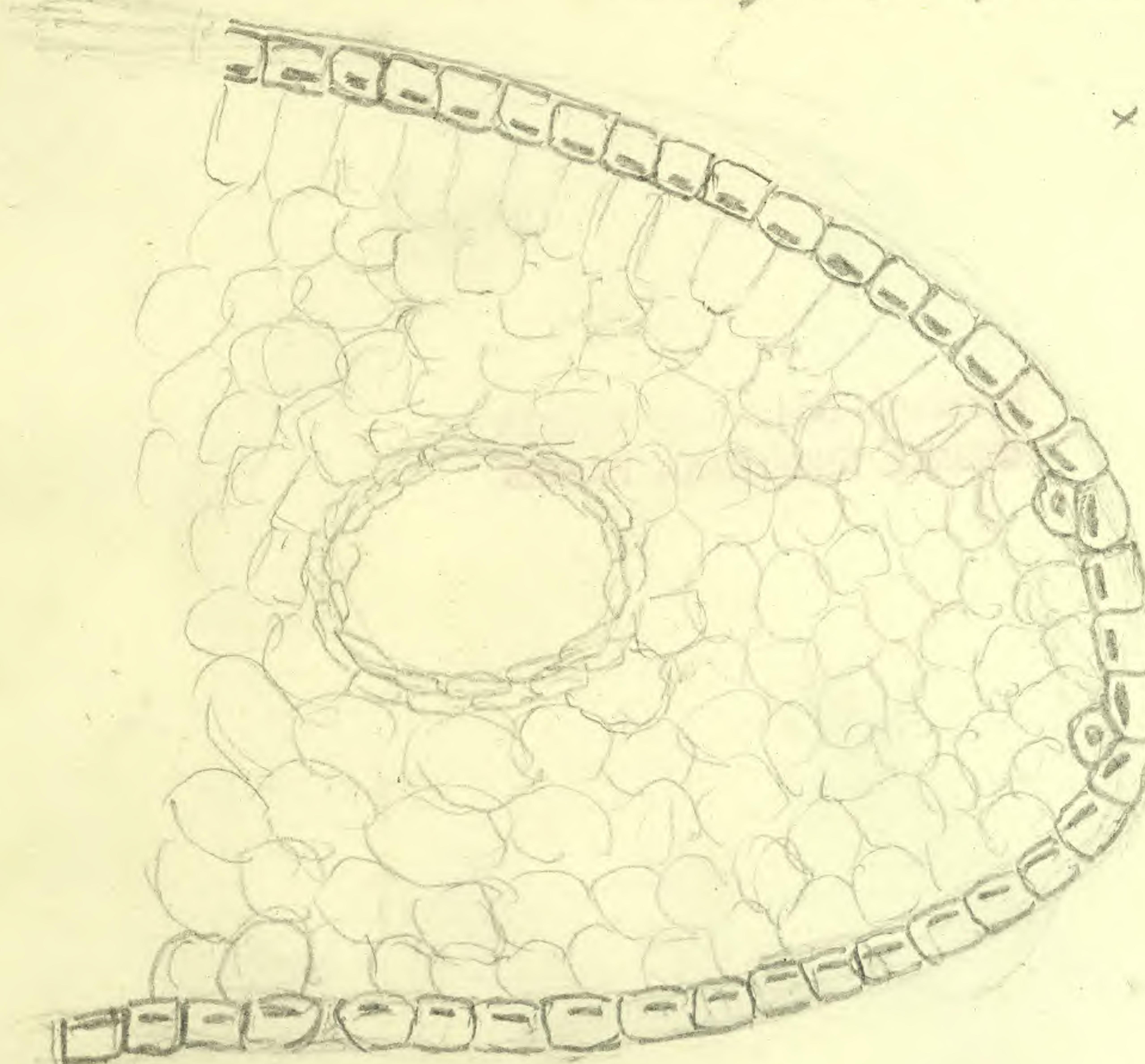
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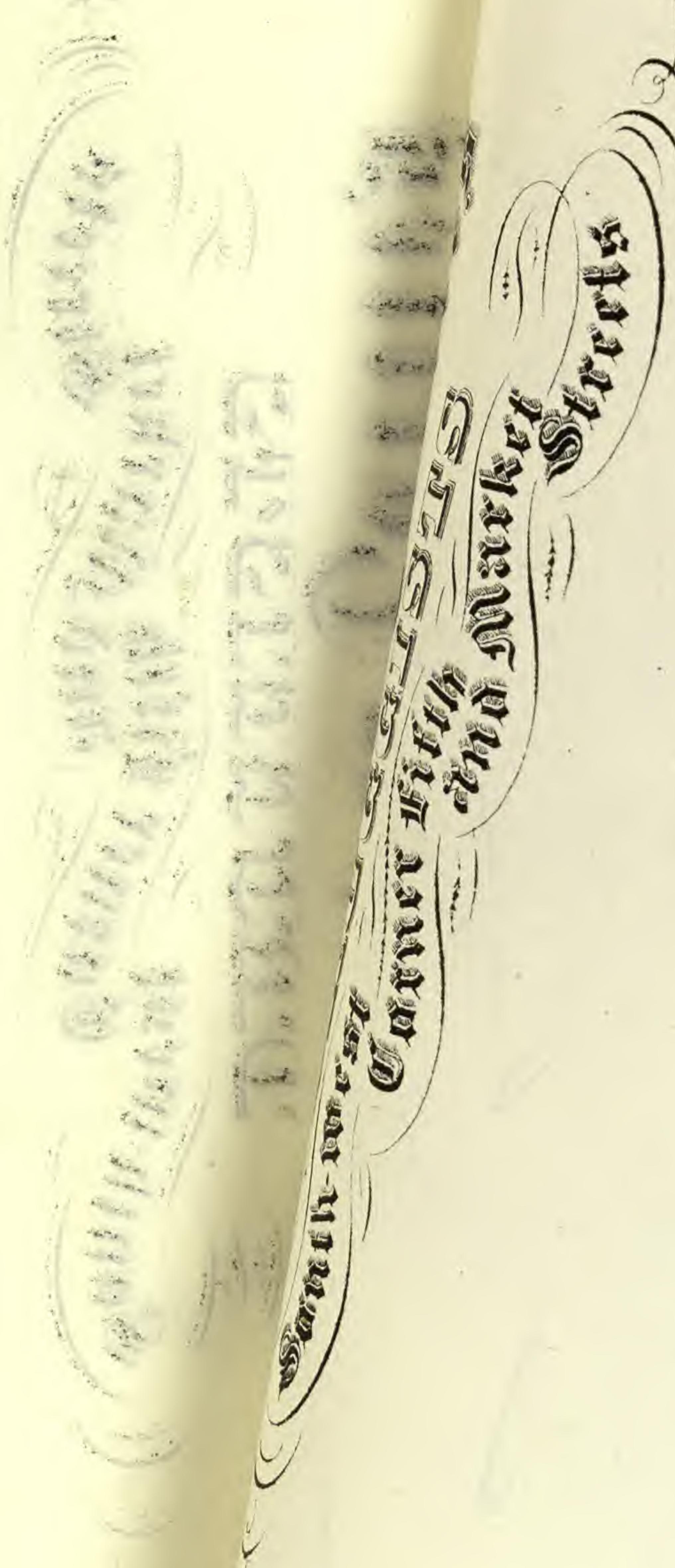
*A. Balsamea*

Jan 25 1876

Michigan, H. Gillman 1873



x 150



0 1 2 3 4 5 6 7 8 9 10

cm

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Wittig & C. J. Wittig  
DRUGGISTS  
Sam'l West Wittig and Son  
Market Street

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0 1 2 3 4 5 6 7 8 9 10

cm

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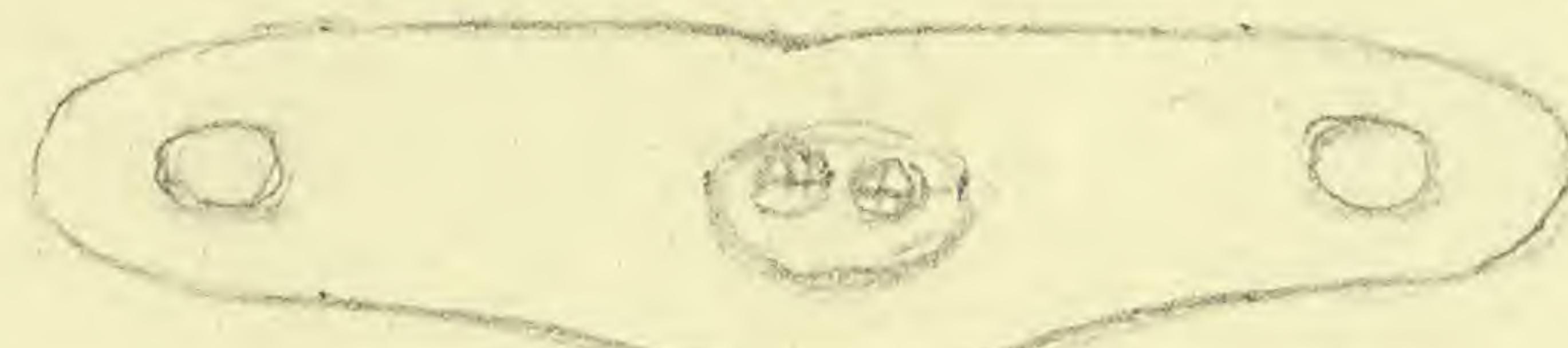
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Abies balsamea  
Mass. tree island taken up by you  
Stewart few, round top

Oct 1 1895

9. Engelman 1860

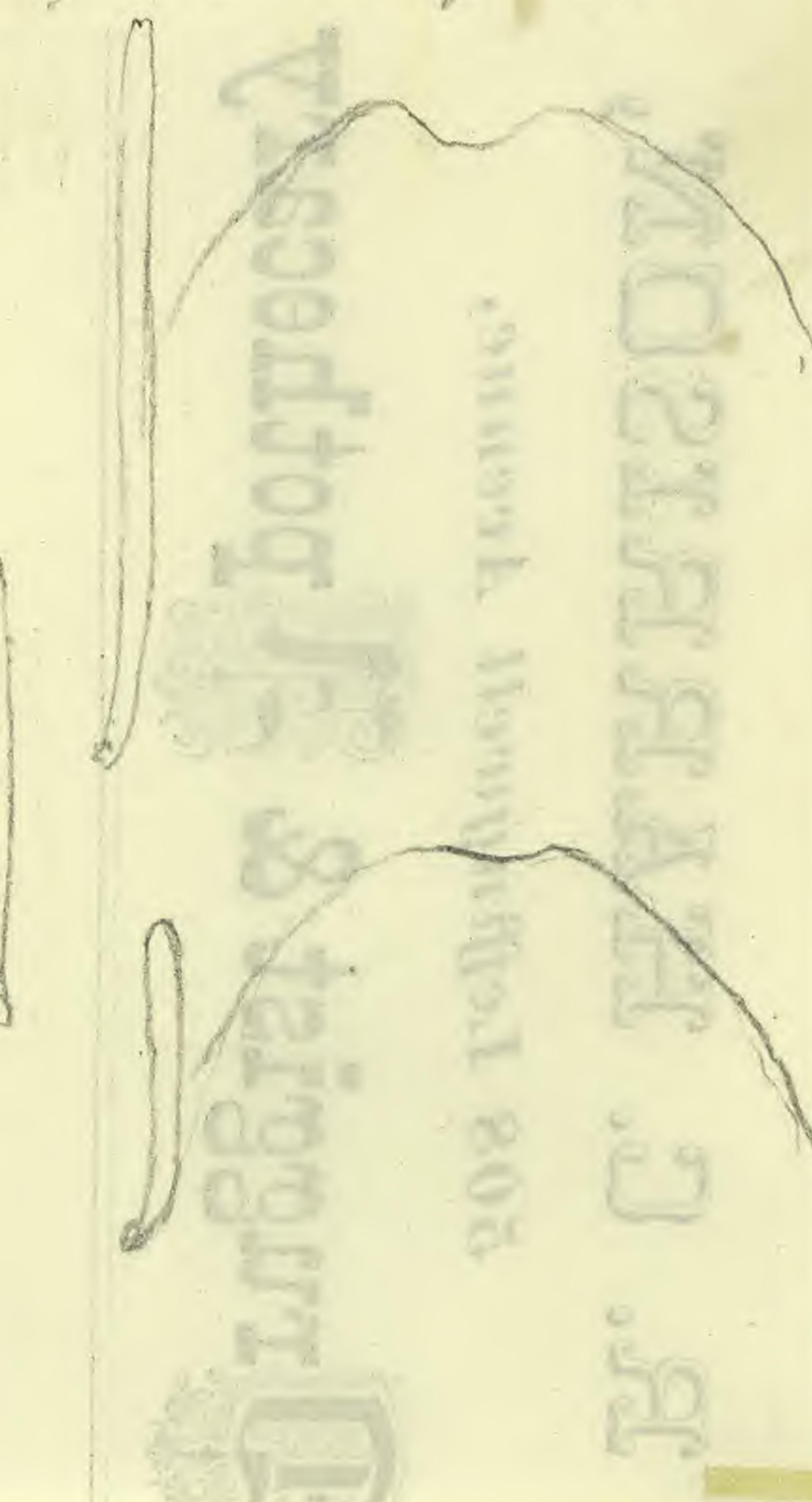
$\times 30$



2. Counts of 1000  
each of 6 lines.



26 and 27 June. -  
Scarcely a few hippoderm cells at Corinna,  
none above 2000 even on edges of leaf.



0 1 2 3 4 5 6 7 8 9 10  
cm copyright reserved

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cm

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" ab. Fracini "

Oct 2 1975

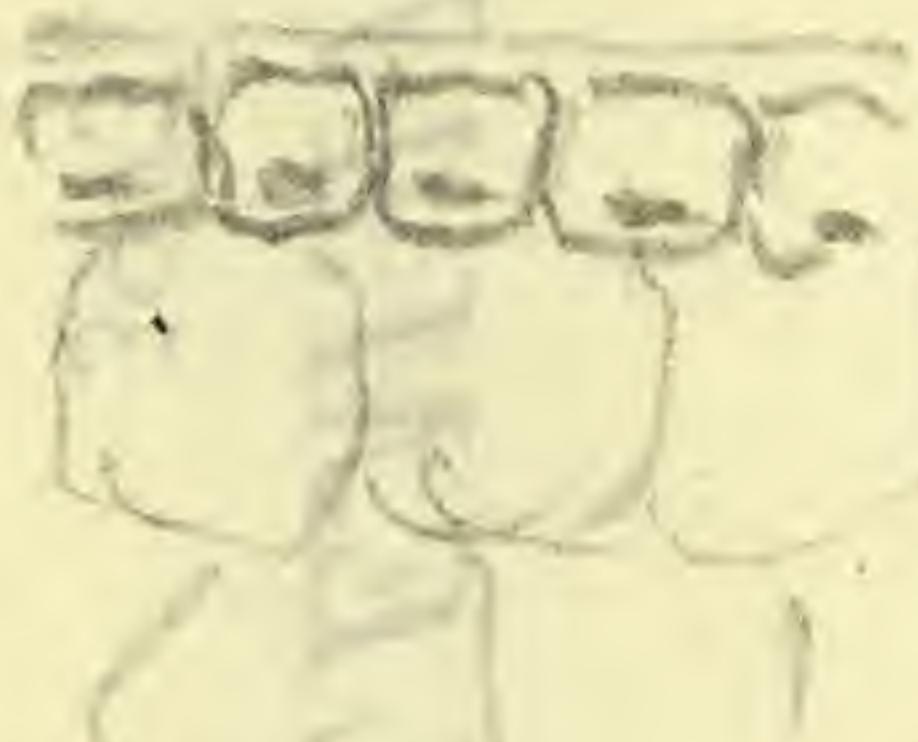
Herb. Bot. Berlin 1869

$\times 30$

very few stomata



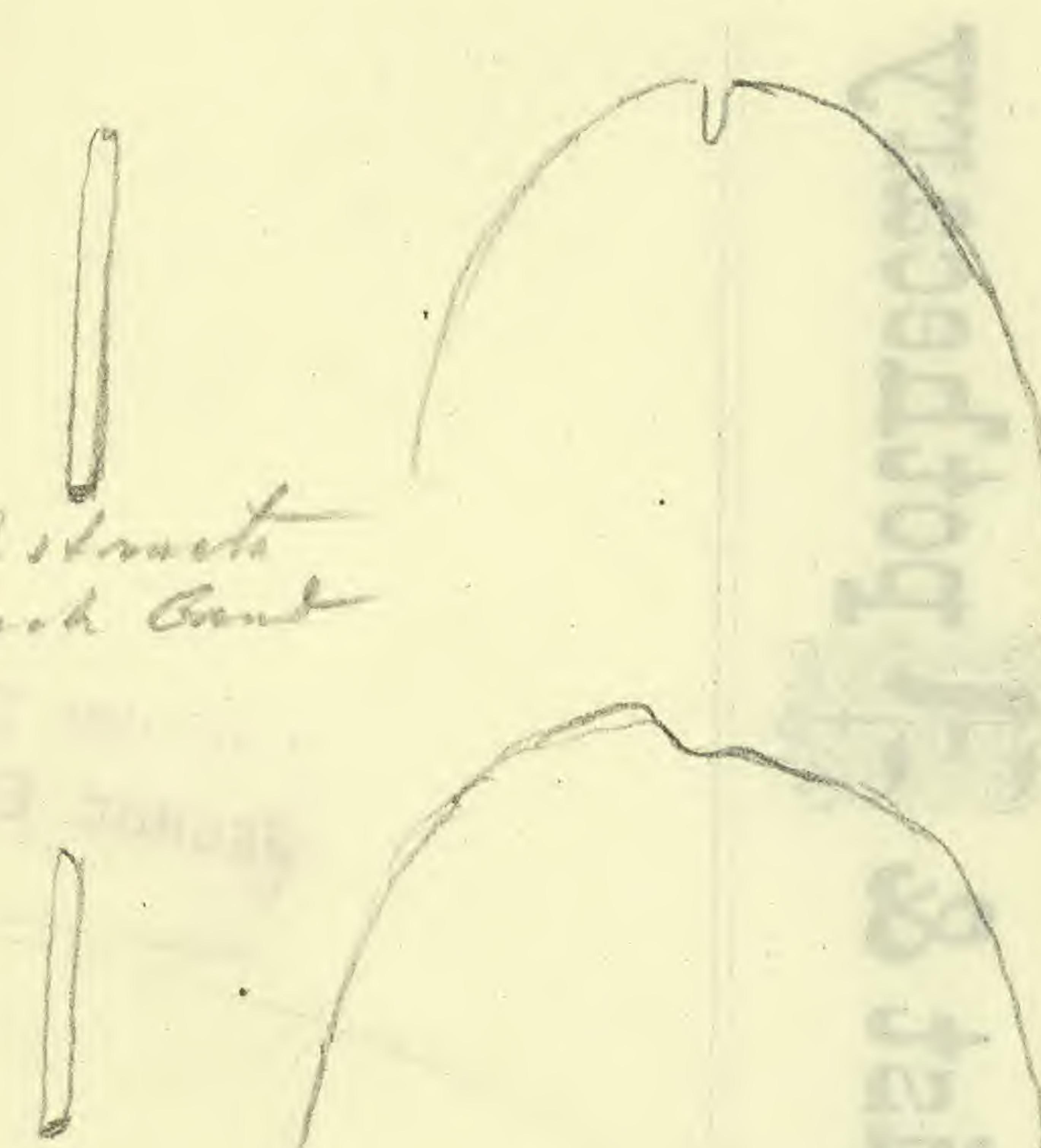
$\times 150$



row of few stomata



4-6 Lines of stomata  
in each band



Ducts not close  
to cortical stomata!  
some parenchyma cells separate them

very few false but odd  
on edges. and lower corona  
none as hypodermis layer



0 1 2 3 4 5 6 7 8 9 10

cm

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0 1 2 3 4 5 6 7 8 9 10

cm

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*Abies*

*Abies subalpina*  
var. *golleyi*

~~Lepto~~



0  
cm

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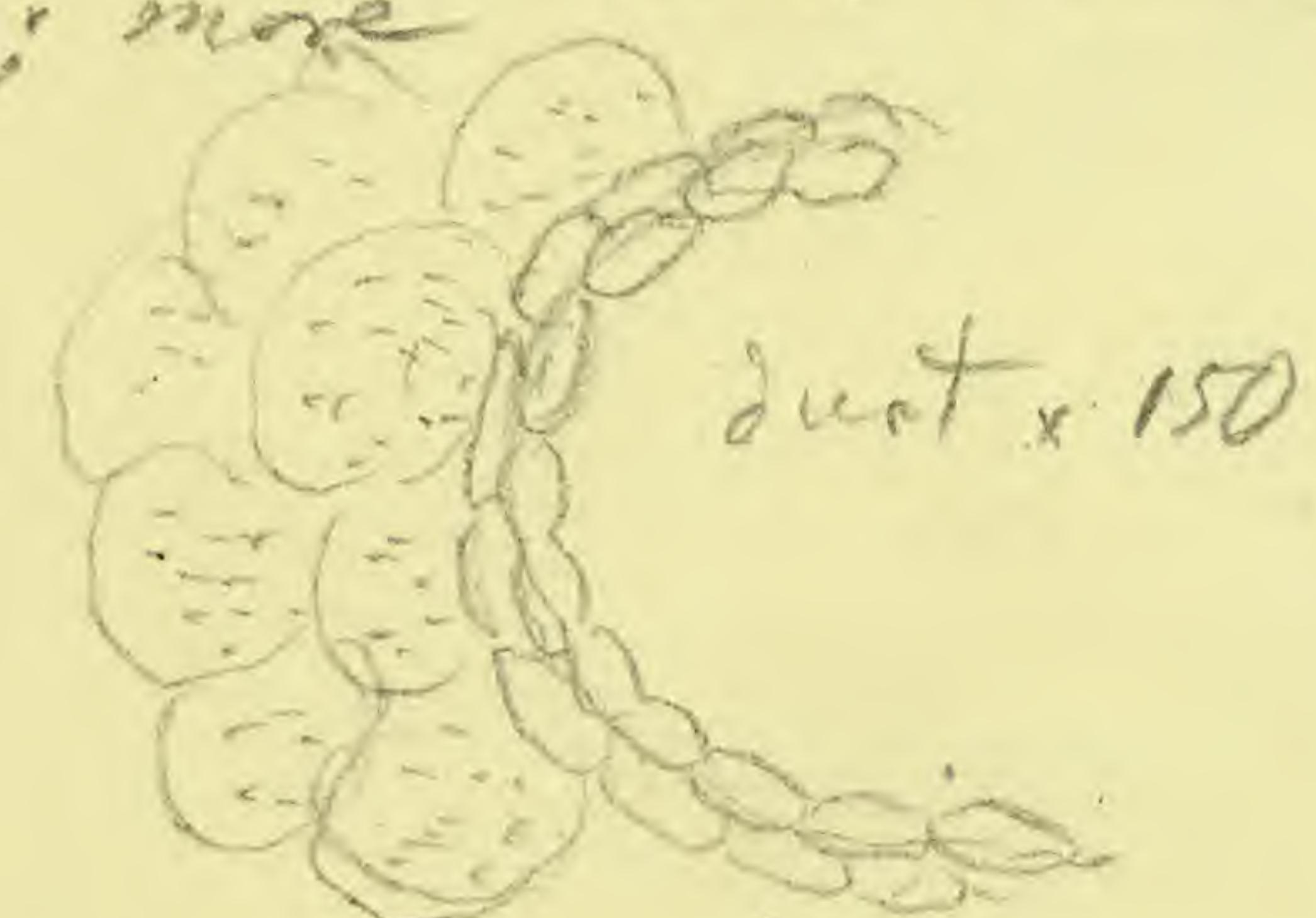
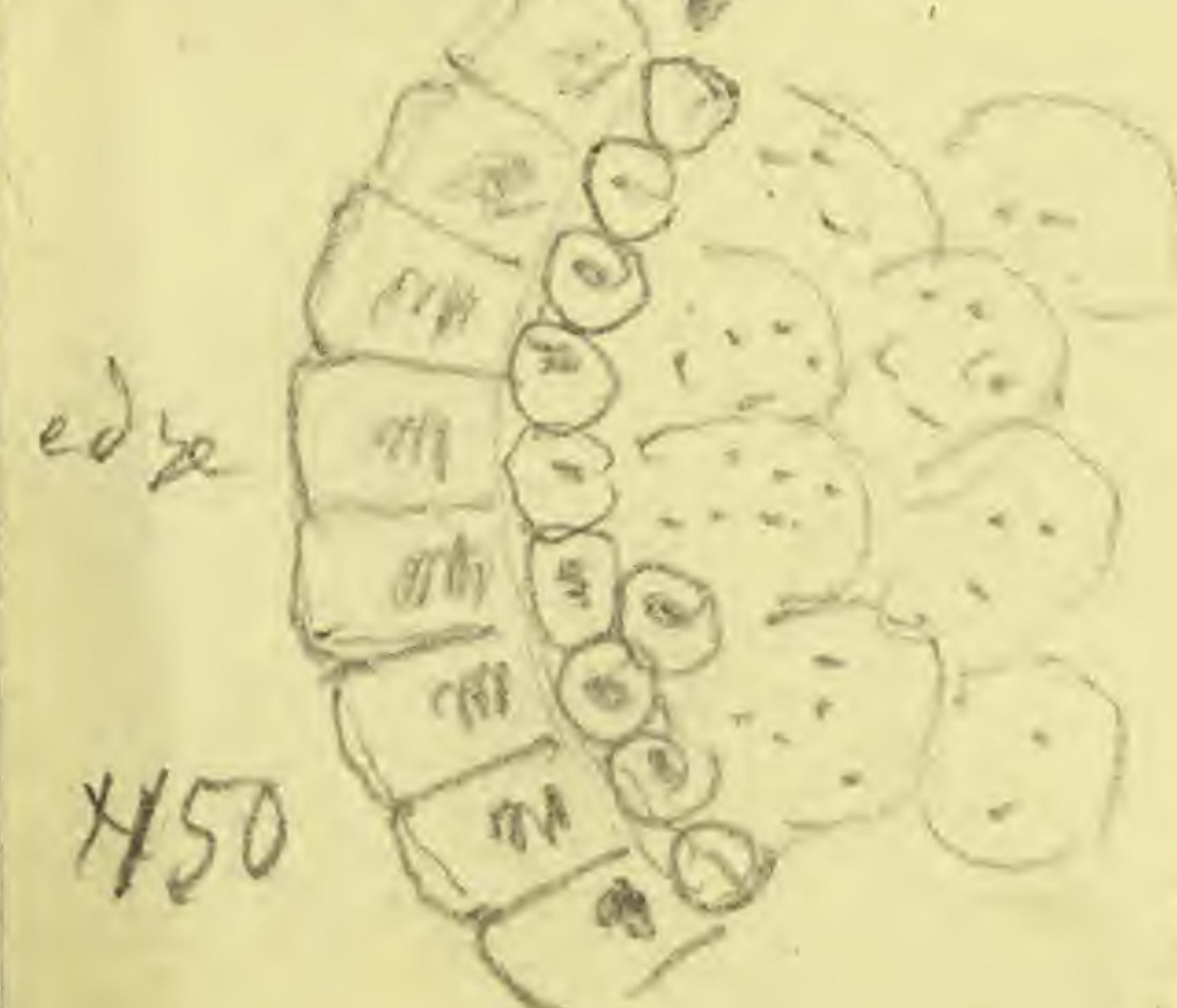
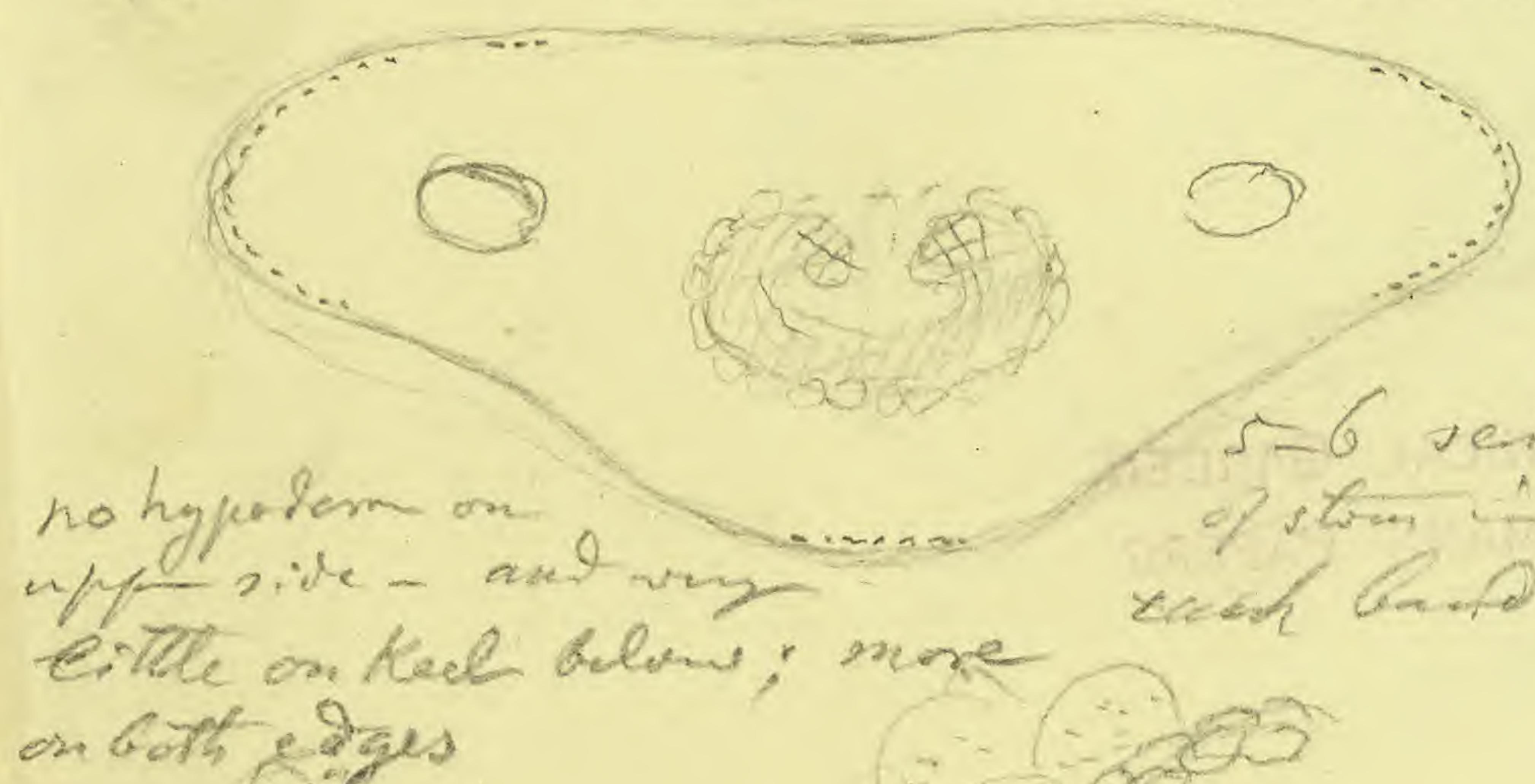
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*Abies concolor* D. C. &  
Utah A. L. Pilcher mis

June 12 1896

$\times 30$

10-12 series of stomata above



hypoderm cells  
small. not much  
over half diameter  
of epiderm cells



0 1 2 3 4 5 6 7 8 9 10

cm

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# Leitch & Corlies

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South West Corner Fifth and Market Streets.

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0 1 2 3 4 5 6 7 8 9 10

cm

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*Abies concolor* Devia  
Wash. Silva  
Pollen

Jan 12 1876

x4



Panicle not open yet  
triangular tip of Anthers  
dark purple

57 0.14 mm  
48 57 67 mm 415 (0.11-0.18)



0 1 2 3 4 5 6 7 8 9 10

cm

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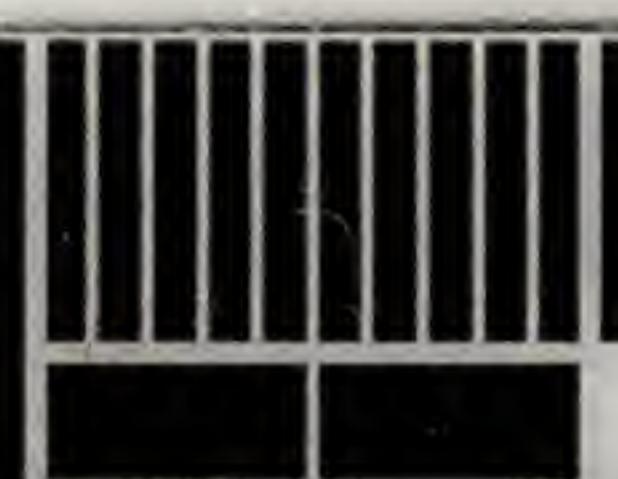
12715

Leitch & Corlies

DRUGGISTS

South West Corner Fifth and Market Streets.

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0 1 2 3 4 5 6 7 8 9 10

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"*A. amabilis*"

Oct 20 x 21

1877

Wadsworth 1835 Sept. Carson City

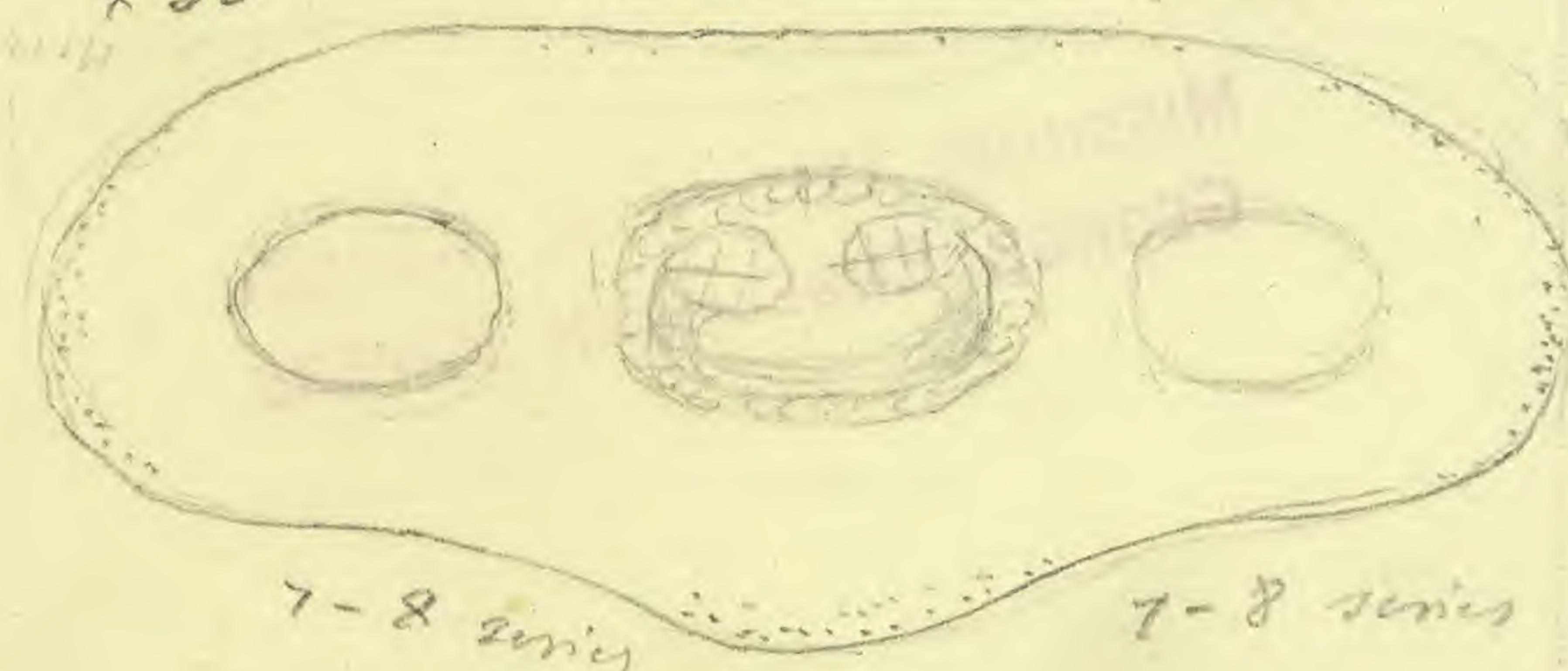
ex H. B. Kammell Dep.

Do cone and leaves belong together?

14 - 16 series of stom.



26 x 30



7-8 series

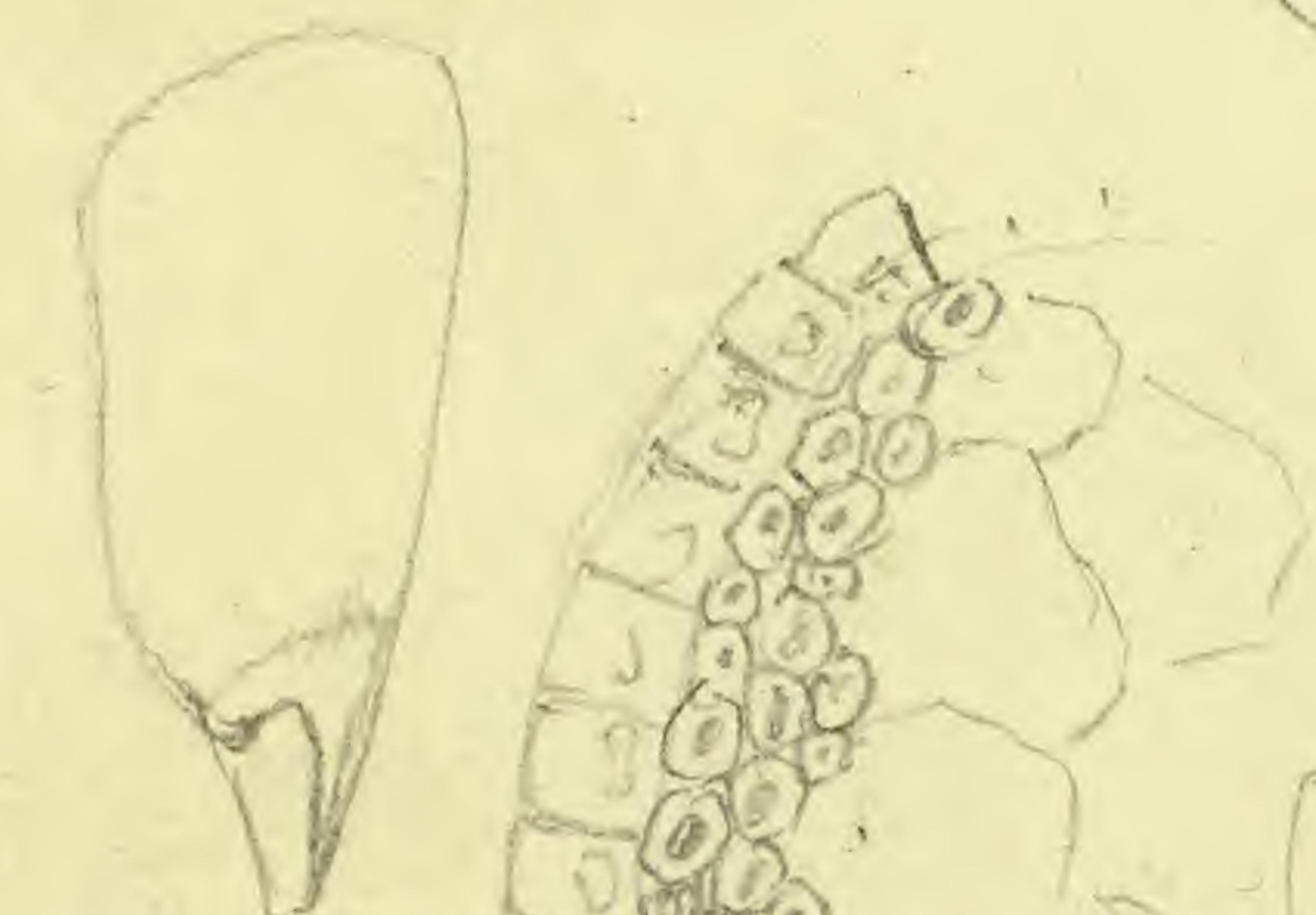
7-8 series

36 mm

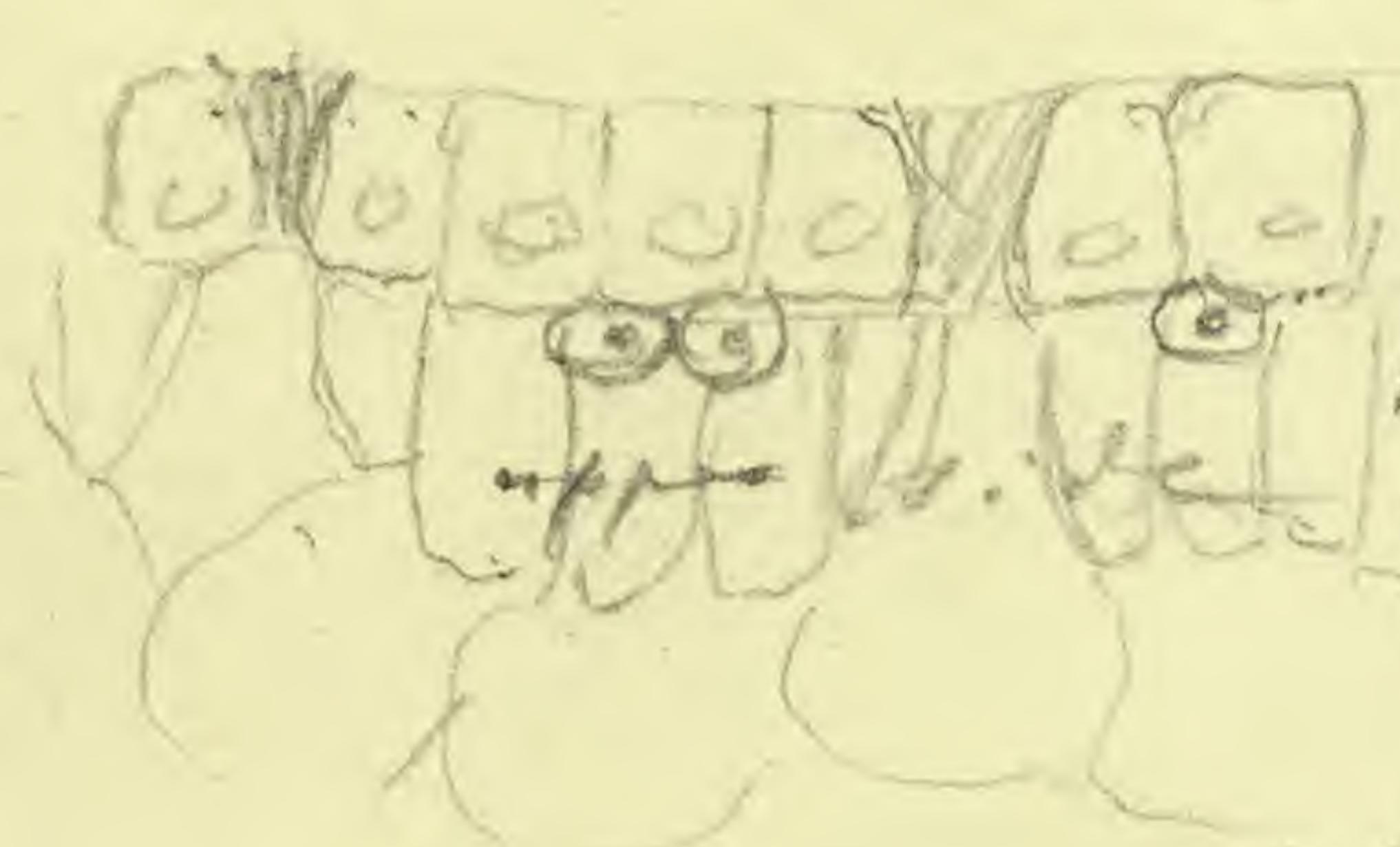
Tip x

1/2 inches

Leaf said to come from  
fertile branch



x 150



epiderm  
cells



epiderm  
cells

Koch x 150

hypoderm half as large  
as epiderm cells



0 1 2 3 4 5 6 7 8 9 10

cm

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Deutsche Aphthek.

GEDEON DODIE,



No. 3610 North 10th Street,

Between Mallinckrodt and Salisbury,

ST. LOUIS, MO.

No.

For

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RP.

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0  
cm

1

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crown with stomata

hypodermally  
on edges & near  
an

no stomata

Oct 26 1875



0 1 2 3 4 5 6 7 8 9 10

cm

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wilson  
n ita

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0 1  
cm

crown with stonew

hypodermally  
on edges & few  
now

x30

wilson

stomata

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GEORGE F.



0 1 2 3 4 5 6 7 8 9 10

cm

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GARDEN

10  
9  
8  
7  
6  
5  
4  
3  
2  
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0

cm

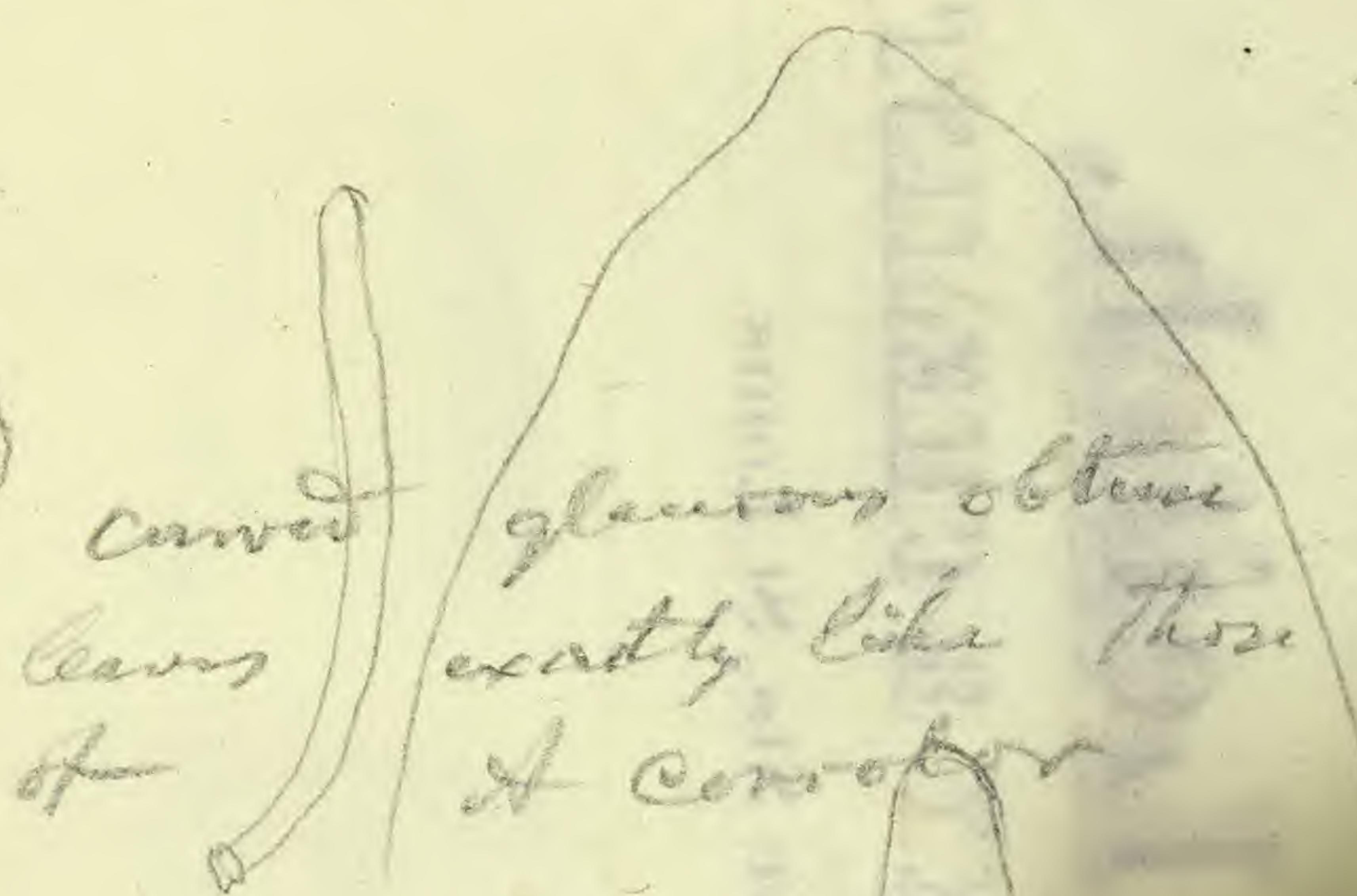
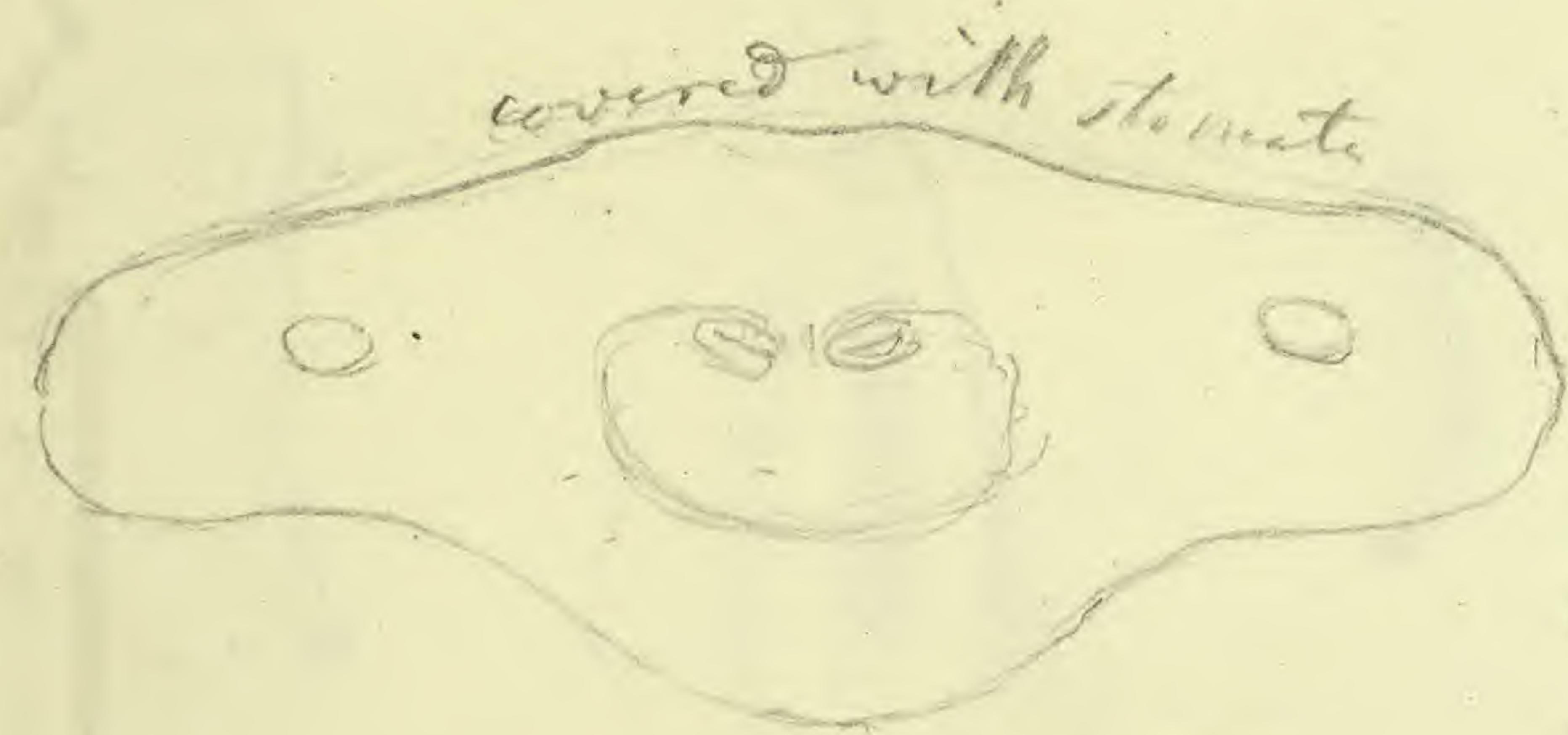
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*Abies "amabilis"*

Oct 13 1875

Wasatch Mts.

Watson



hypodermally small  
on edges a keel, quite narrow  
even above



0 1 2 3 4 5 6 7 8 9 10

cm

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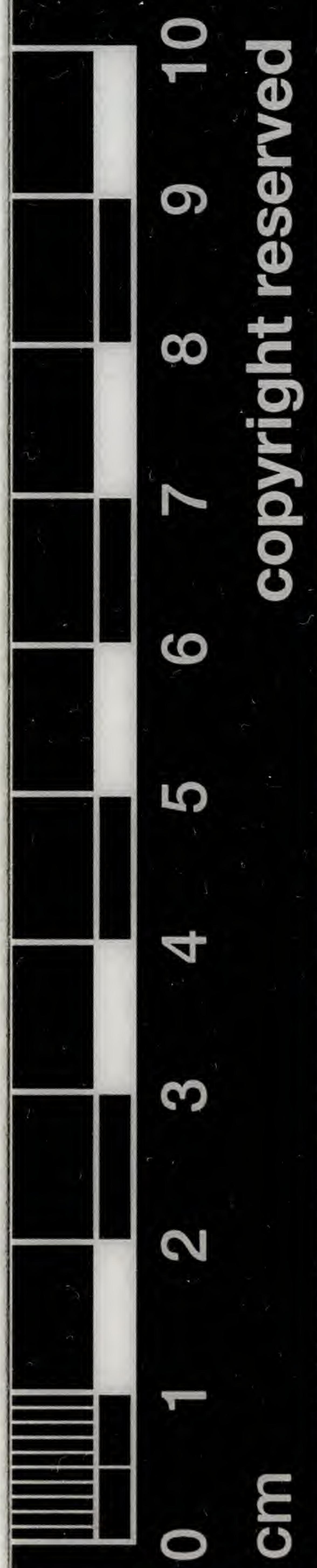
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APOTHECARY & CHEMIST,

Cor. 4<sup>th</sup> & Olive Sts., St. Louis.

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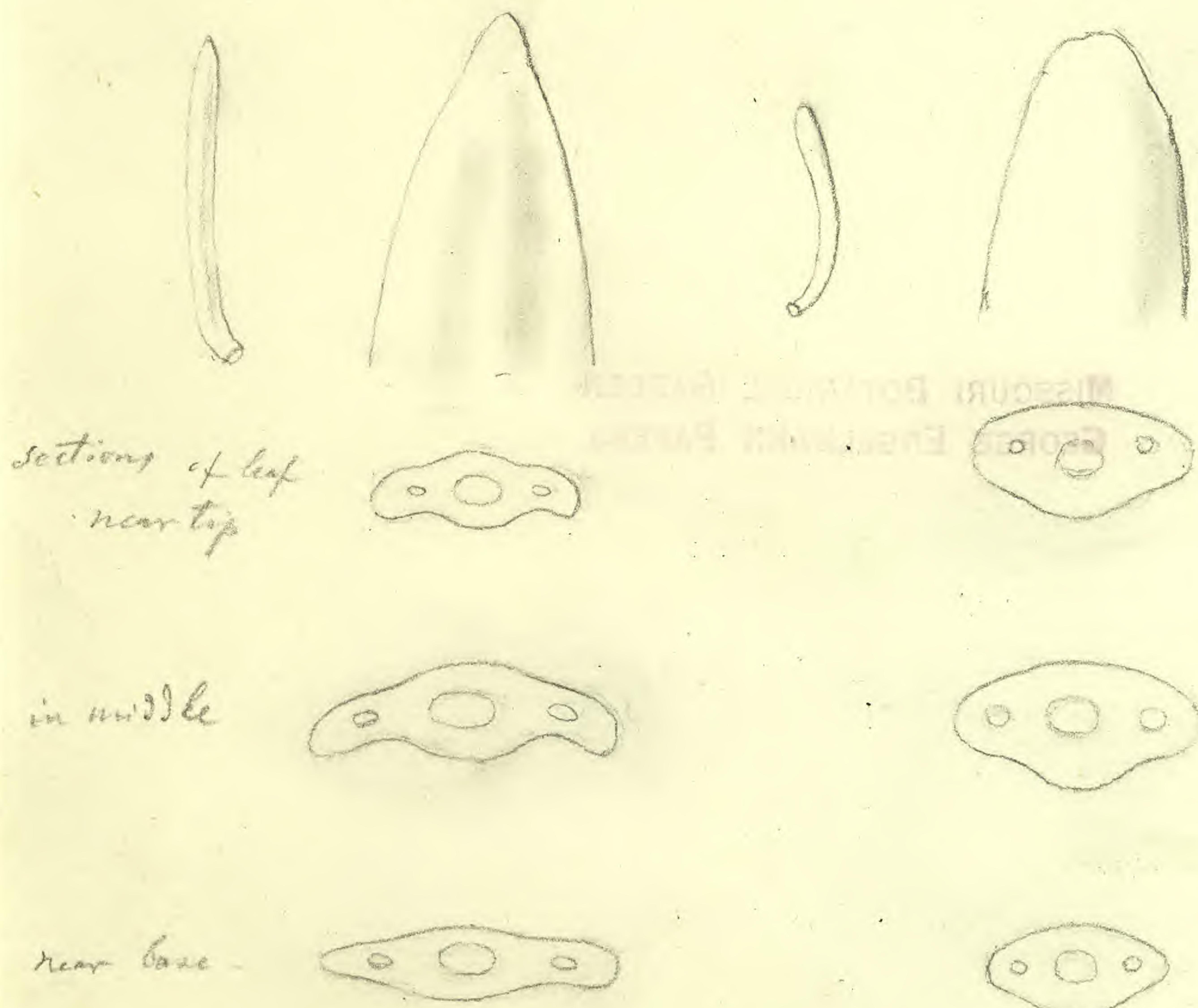
"*Stamobilia*" *Anomobilia*!  
S. Watson Catal p 233

April 9, 1872  
Orch. 1875  
from W. A. Schubert coll.

x10

x10

x69



0 1 2 3 4 5 6 7 8 9 10  
cm

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11th & Locust Streets  
St. Louis, Missouri

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0 1 2 3 4 5 6 7 8 9 10

cm

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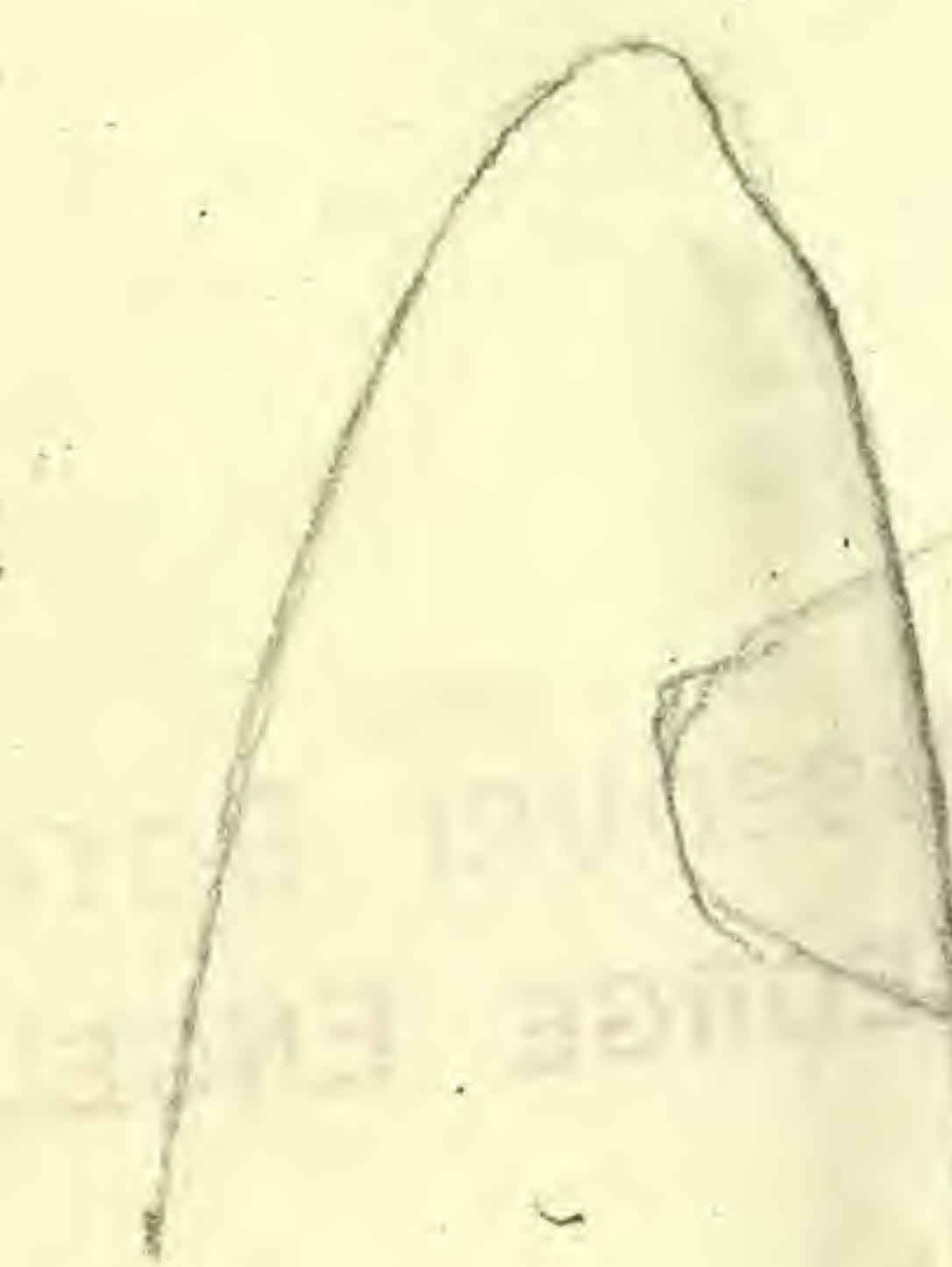
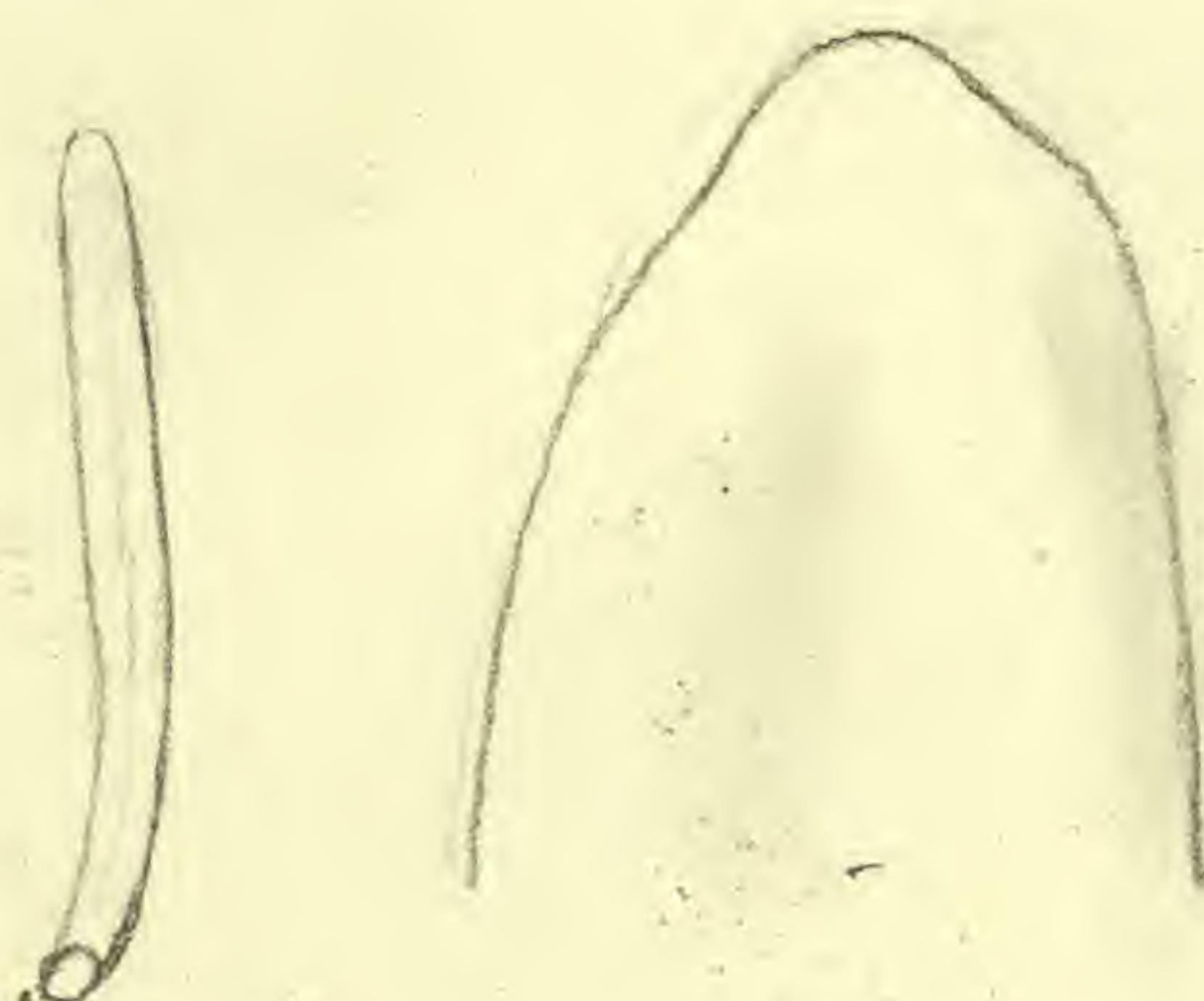
*Abies grandis*

April 15 1872

Frémont 1845 No 211

stomata abundant on both sides  
of leaf

$\times 10$



covered with stomata

$\times 30$

Oct 6 1875

scd. of leaf  
near top



in middle



near base



hypoderm as in 202

amabilis, Watson  
has similar large  
latent ducts April 1872



0 1 2 3 4 5 6 7 8 9 10

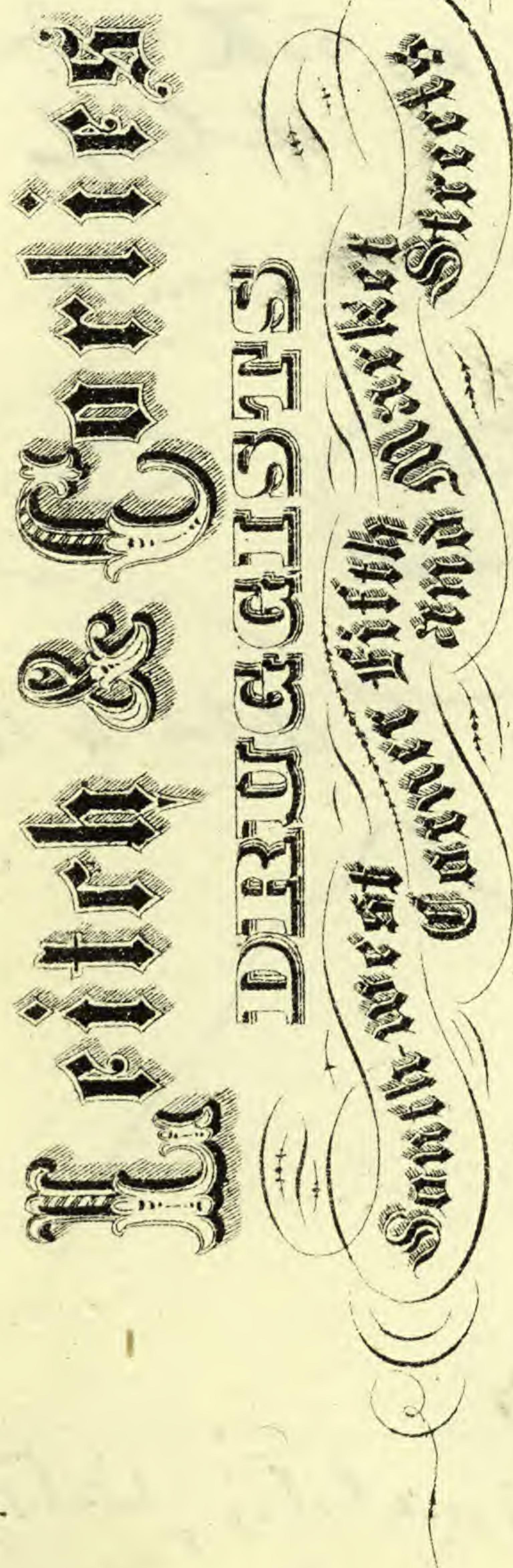
cm

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0 1 2 3 4 5 6 7 8 9 10

cm

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*Alnus grandis*

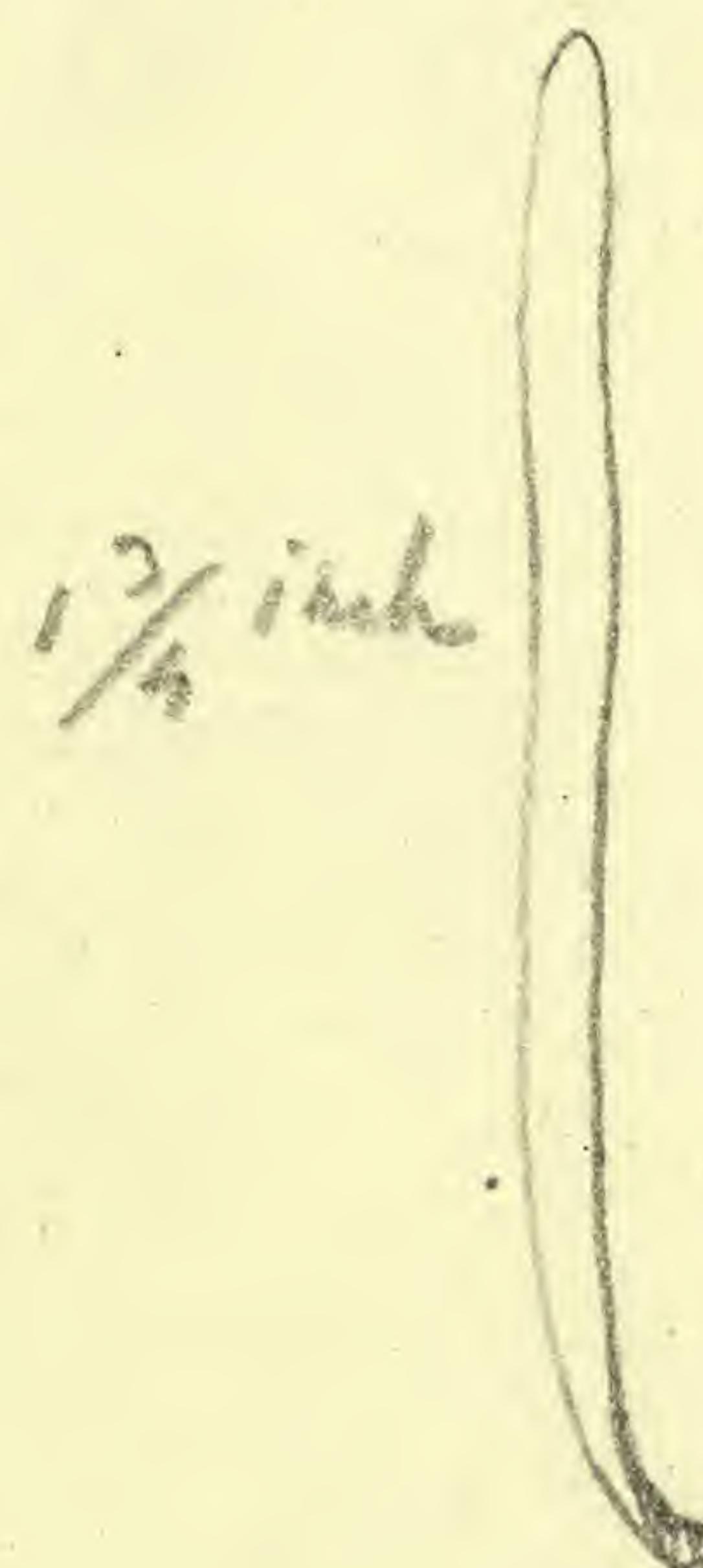
Louisiana

April, 15. 1872

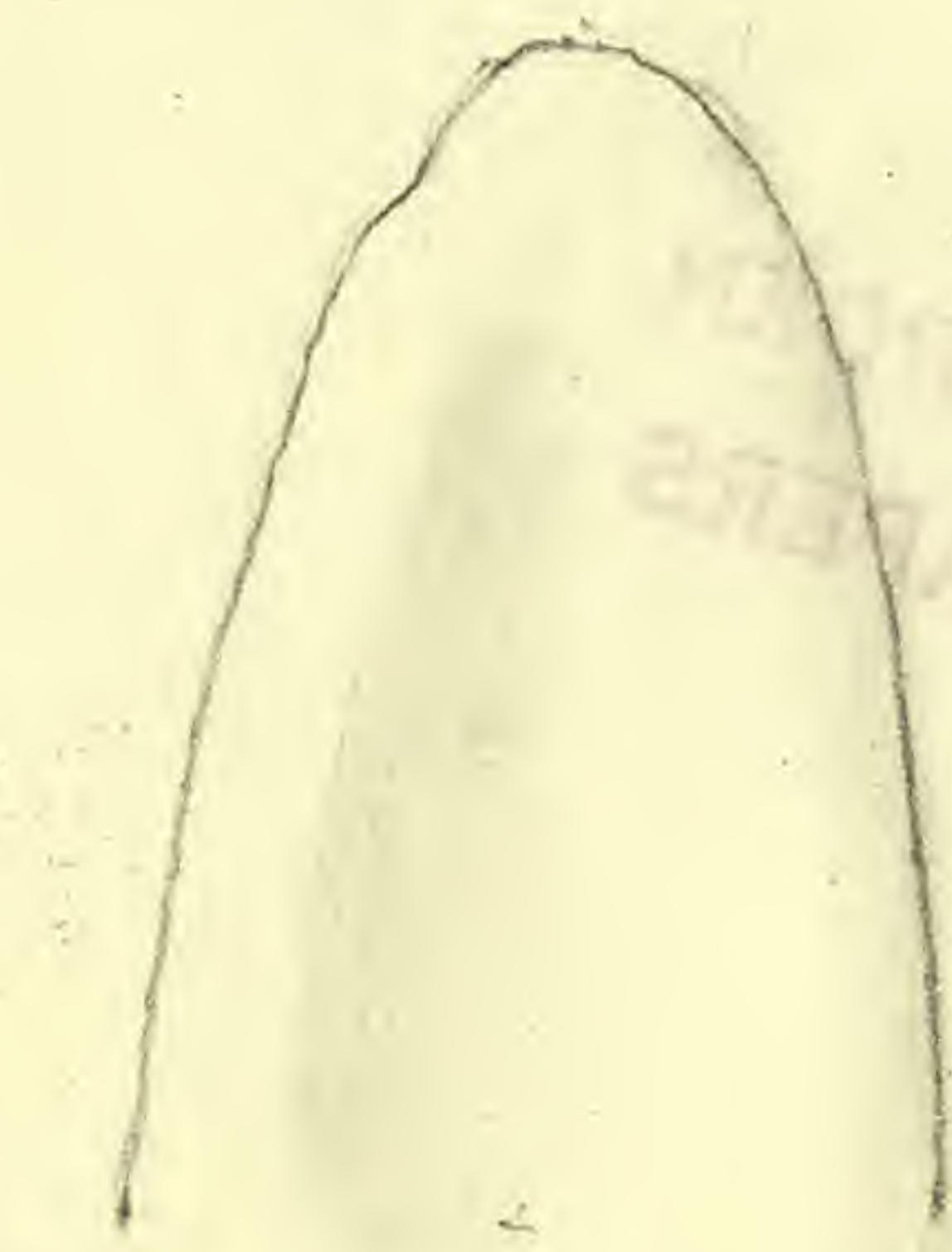
Formentor 1845 - No. 202

stomata abundant on both sides

stomata abundant



$\times 10$



$\times 10$



40th  
1875

$\times 30$

hypoderm cells  
on edges & a keel

small but may  
none above



near base



in middle



root of leaf near tip



0 1 2 3 4 5 6 7 8 9 10

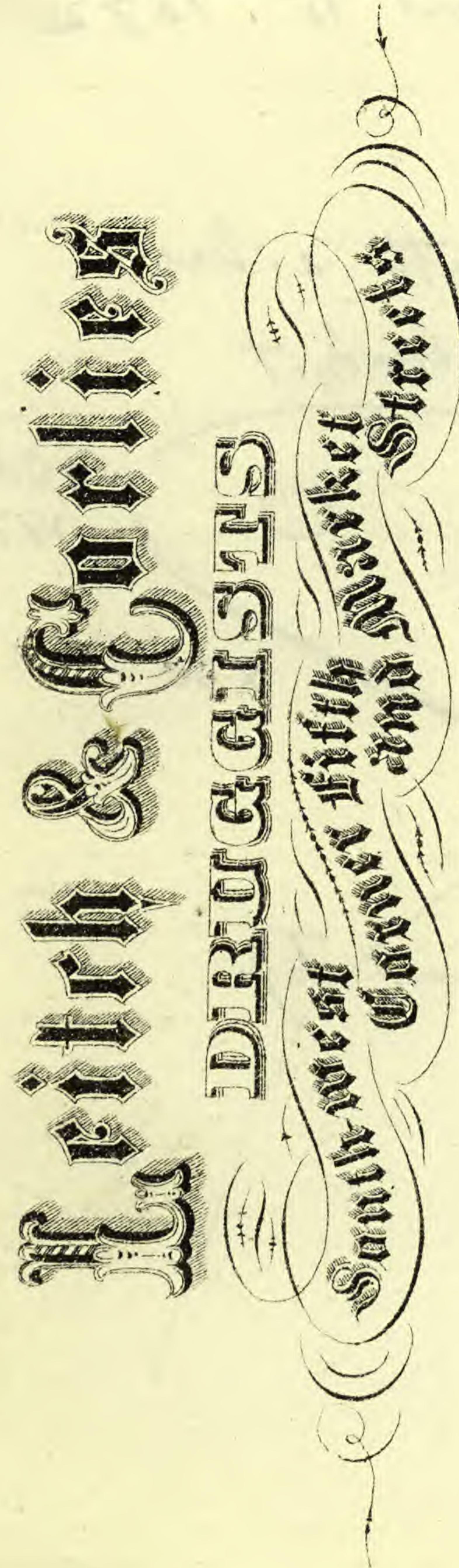
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0 1 2 3 4 5 6 7 8 9 10  
cm

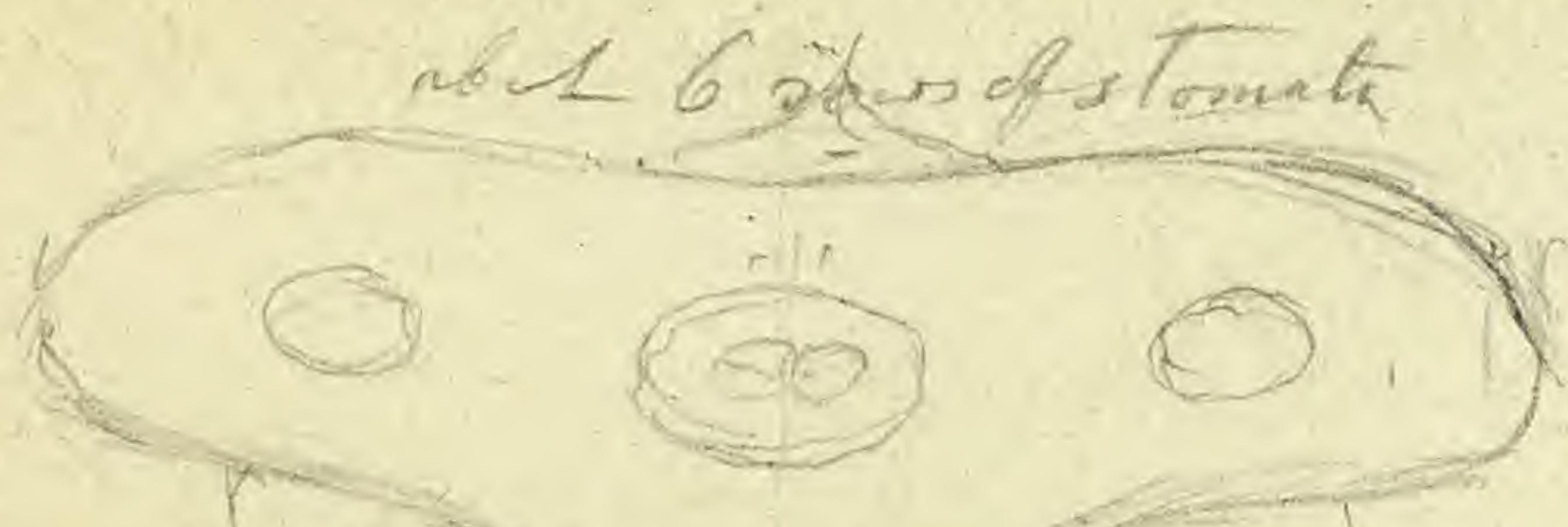
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*Abies lasiocarpa*  
*stomatoxa*

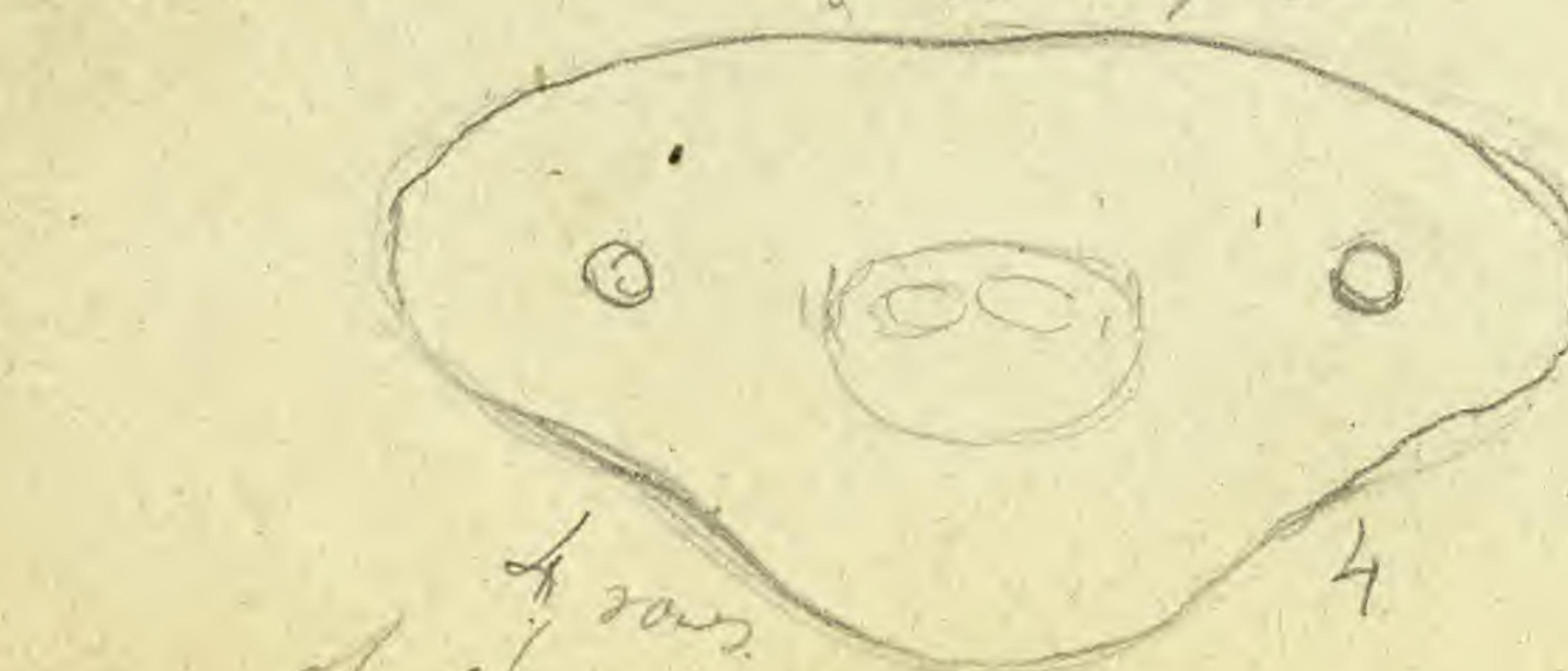
July 17 1877



6 rows  
of stomata



5-6 rows of  
stomata



8 rows  
of sto

long

1/2 inch

leaves on an  
axis which a

bone comes

sharp leaves on vigorous shoot  
which bears cones

latent shoot of same  
branch

bract & scale  
before fl.

X4

purple bract & strobile after  
flowering X4



0 1 2 3 4 5 6 7 8 9 10  
cm

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MISSOURI  
BOTANICAL  
GARDEN

12723.



ALEX. LEITCH,  
APOTHECARY & CHEMIST,  
Cor. 4th and Olive Sts., St. Louis.



MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS



0  
cm

1 2 3 4 5 6 7 8 9 10

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MISSOURI  
BOTANICAL  
GARDEN